

## **Chapter 12.60**

### **ROAD DEVELOPMENT STANDARDS**

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### I. GENERAL CONSIDERATIONS

#### 12.60.010 Purpose.

(1) Chapter 36.75 RCW requires that County roads be established, laid out,

constructed, altered, repaired, improved and maintained by the County or by private individuals or corporations authorized to perform such work under an agreement with the County legislative authority. Such work and improvements shall be done in accordance with adopted County standards under the supervision and direction of the County Engineer.

(2) The purpose of the Lewis County Road Standards is to encourage the uniform development of an integrated, fully accessible public transportation system that will facilitate present and future travel demand with minimal environmental impact to the community as a whole. These Standards include safety, convenience, drainage, aesthetic values, and economical maintenance.

(3) These Standards are not intended to provide for all situations. They are intended to assist but not to substitute for competent work by design professionals. It is expected that land surveyors and engineers will bring the best of their skills to each project.

(4) These Standards are also not intended to unreasonably limit any innovative or creative effort. However, any deviation from these Standards is subject to the approval of the County Engineer based on satisfactory evidence that the proposed design deviation will produce a compensating or comparable facility.

(5) In rural areas of Lewis County, it is the intent of these Standards to preserve rural character and to enhance safety. For these reasons, rural road design encourages a safe operating environment for the traveling public and context-sensitive construction. Roads are intended to continue the historic pattern of development in rural areas. [Ord. 1183, 2003]

#### 12.60.020 Applicability.

(1) Except as noted in LCC 12.60.050, these Standards shall apply to all newly constructed or reconstructed private roads and to all public roads within a Lewis

County easement tract, right-of-way or right-of-way to be dedicated to Lewis County by any person, firm, corporation or other entity. Standards shall be considered minimum regulations, and shall not be relaxed except upon approval of a Design Change/Deviation.

(2) Any land development that will adversely impact the level of service, safety, or operational efficiency of abutting or serving roadways or is required by other County code, permit or ordinance to improve such roadways, shall improve those roadways in accordance with these Standards or the applicable urban growth area standards. The need for off-site improvements to existing County roads shall be based on an assessment of the potential impacts of the proposal.

(3) These Standards are pursuant to Lewis County Code Title 16 "Subdivisions" and Title 17 "Land Use and Development" and the Uniform Building Code. Where these Standards may be inconsistent with the provisions of Title 16 and Title 17, these Standards shall control. [Ord. 1183, 2003]

#### **12.60.030 Definitions and terms.**

Unless otherwise stated, words and phrases used in this chapter shall have the following meanings:

(1) AASHTO – American Association of State Highway and Transportation Officials

(2) ACC – Asphalt Cement Concrete

(3) Acceleration Lane – A speed change lane, including tapered areas, for the purpose of enabling a vehicle entering a roadway to increase its speed to a rate at which it can more safely merge with through traffic.

(3) Access – The ability to enter or leave the general public road system from an adjacent driveway, shared access facility, alleyway or private road.

(4) Access Management - A tool to provide access for land development while preserving the flow of traffic in terms of safety, capacity and speed of travel.

(5) Applicant – Any person, firm, partnership, association, joint venture, corporation, or other public or private legal entity that proposes to engage in any construction activities within County right-of-way.

(6) Average Daily Traffic (ADT) – The average number of vehicles passing a specified point or segment of a road, in both directions, during a period of time, divided by the number of days in the period and factored to represent an estimate of traffic volume for an average day of the year.

(7) Approved Plans – Project plans that have been approved for construction by the County Engineer or designee.

(8) Ballast –Coarse gravel or crushed rock laid to form a roadbed.

(9) Bollard - One of a series of posts preventing vehicles from entering an area.

(10) Breakaway Structure or Breakaway Design – A structure or installation that has been crash tested in accordance with National Cooperative Highway Research Program procedures.

(11) Bridge – A structure that spans and provides a way across an obstacle.

(12) BST – Bituminous Surface Treatment.

(13) Capacity – The maximum number of vehicles that have a reasonable expectation of passing over a given roadway or section of roadway in one direction during a given time period under prevailing roadway and traffic conditions.

(14) Channelization – The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands or other suitable means to facilitate the safe and orderly movement of both vehicles and pedestrians.

(15) Clear Zone – The total roadside border area, starting at the edge of the traveled way, available for safe use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a nonrecoverable slope, and/or a clear run-out

area. The clear zone cannot contain a critical slope.

(16) Compaction – Compression, packed tightly together through applied pressure or vibration.

(17) Control Zone – That roadside area defined by the “Control Zone Distance Table” found in the WSDOT Utilities Manual, within the road right-of-way in which placement of utility objects are controlled.

(18) County – Lewis County

(19) County Engineer – The Lewis County Engineer or his/her designee.

(20) Critical Slope – A slope on which a vehicle is likely to overturn. Slopes steeper than 3H:1V are considered critical slopes.

(21) Cul-de-sac – A vehicle turnaround at the end of a dead end road.

(22) Curb Cut – An access without a curb radius. A curb cut is generally used where lower traffic volumes are anticipated.

(23) Curb Return – An access or intersecting road with a turning or curb radius. A curb return is generally used for higher traffic volumes to enable vehicles to turn safely off the roadway.

(24) Deceleration Lane - A speed change lane, including tapered areas, for the purpose of enabling a vehicle that is to make an exit turn from the roadway to slow to a safe turning speed after it has left the main stream of faster-moving traffic.

(25) Design Hour Volume (DHV) - Hourly peak traffic volume, in a typical 24-hour period, used for road design and capacity analysis. On the average rural road or arterial, DHV is about 15 percent of ADT. For urban areas, DHV is usually 10 percent of the ADT.

(26) Design Speed – A speed determined for design and correlation of the physical features of a highway that influence vehicle operation; the maximum safe speed maintainable over a specified section of road when conditions permit design features to govern.

(27) Director – The Director of Lewis County Public Works Department or his duly authorized representative.

(28) Driveway – An access from a public right of way or private access easement onto private property. A driveway may serve up to 2 single family residences and is 150 feet or less in length.

(29) Easement – The right to use a defined area of property for specific purpose(s) as set forth in the easement document, on a plat or short plat, or as required for designated purposes.

(30) Easement of Necessity – A permissive, administrative grant by the County, pursuant to the provisions of RCW 36.75.040(5) and Chapter 12.12 LCC, to permit an abutting property owner (or a non-abutting property owner with recorded access rights across an abutting property) to temporarily improve and utilize an unused or unimproved county roadway for purposes of ingress and egress.

(31) Edge of Traveled Way – The face of curb or roadside edge of bike path for roads that are, or will be, constructed to urban standards, or the edge of driving lane (not shoulder) for roads that are, or will be, constructed to rural standards.

(32) Encroachment – Occupancy of County right-of-way by non-roadway structures or other objects of any kind. This includes any work within the County right-of-way.

(33) Engineer – Any Washington State licensed professional engineer who represents the applicant.

(34) Fire Code – Uniform Fire Code adopted by Lewis County Board of Commissioners under Title 15 of the Lewis County Code.

(35) Geometrics – The arrangement of the visible elements of a road such as alignment, grade, sight distance, widths, and slopes.

(36) Grade – Rate or percent of change in slope, either ascending or descending from or along the roadway. It is measured

along the centerline of the roadway or access point.

(37) Hazard – A side slope, an object, water, or a drainage device that, if impacted, would apply unacceptable impact forces on the vehicle occupants or place occupants in a hazardous position. It may be either natural or manmade.

(38) Horizon Year(s) – Estimated year or years in which a project or phases of a project will be complete.

(39) Intersection – The general area where two or more roadways join or cross. Minor approaches to roadways such as private driveways are also defined as an intersection.

(40) Joint Access – An access from County right-of-way that provides access to two or more driveways.

(41) Land Surveyor – Professional Surveyor registered in the State of Washington to practice Land Surveying per RCW 18.43.

(42) Limited Area of More Intense Rural Development (LAMIRD) – An area designated by the County, in compliance with RCW 36.70A.070(5)(d), where more intensive development existed in a rural area prior to the date that the County was required to plan under the Growth Management Act. Such areas must meet the statutory criteria for designation, must have logical outer boundaries delineated predominantly by the built environment, and all public services and facilities shall be limited to the areas within in a manner that does not permit low-density sprawl. Certain intensification or development, or new development may be permitted within LAMIRDs that may not otherwise be permitted in other rural areas.

(43) MUTCD – Manual of Uniform Traffic Control Devices.

(44) New Construction – Building of a new roadway or structure on substantially new alignment, or the upgrading of an existing roadway or structure by the addition of one or more continuous traffic lanes.

(45) NGVD – National Geodetic Vertical Datum.

(46) Operating Speed – The speed at which drivers are observed operating their vehicle during free flow conditions. The 85th percentile of the distribution of observed speeds is the most frequently used measure of the operating speed associated with a particular location or geometric feature.

(47) Passing Sight Distance – The minimum sight distance required for the driver of one vehicle to pass another vehicle safely and comfortably.

(48) Pavement Width – The paved surface, including paved shoulder on shoulder-type roads, or paved surface between curb, thickened edge or gutter flow line.

(49) PCC – Portland Cement Concrete.

(50) Plan/Construction Drawings – The plans, profiles, cross sections, elevations, details, and supplementary specifications, signed by a licensed professional engineer and approved by the County Engineer, that show the location, character, dimensions, and details of the work to be performed.

(51) Private Road - Private vehicular access provided for by an access tract, easement, or other legal means to serve property that is privately owned and maintained.

(52) Project – General term encompassing all phases of the work to be performed and is synonymous to the term “improvement” or “work”.

(53) Public Road – Publicly owned and maintained road, including the roadway and all other improvements located within the right-of-way.

(54) P85 Speed or 85th Percentile (85%) Speed – Based on speed studies, P85 Speed is that speed at which 85% of the vehicles travel at or below.

(55) Recoverable Slope – A slope on which a driver of an errant vehicle can regain control of the vehicle. Slopes of 4H:1V are considered recoverable.

(56) Resurfacing, Rehabilitation and Restoration – Improvement of an existing roadway surface and/or subsurface for the purposes of preserving and extending the service life of the roadway and enhancing the safety of the traveling public.

(57) Right-of-Way – All property in which the County has any form of ownership, interest or title and which is held for public road purposes, regardless of whether or not any road exists thereon or whether or not it is used, improved, or maintained for public travel.

(58) Road – A facility providing vehicular access, including the roadway and all other improvements inside the right-of-way.

(59) Roadway – The pavement width plus any paved or non-paved shoulders for vehicular use.

(60) Rural Areas – Areas so designated in the Lewis County Comprehensive Plan, that are characterized by long-term low density development.

(61) Separate Turn Lane – An auxiliary lane for turning traffic in one direction that has been physically separated from the intersection area by a traffic island or stripe. Separate turn lanes may be included within intersections or separated from intersection areas by traffic islands.

(62) Shoulder – The paved or unpaved portion of the roadway outside the traveled way that is available for emergency parking or non-motorized use.

(63) Sight Distance, Stopping – As defined by AASHTO, the minimum distance along a roadway sufficiently long to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path. The Stopping Sight Distance is the sum of the distance a driver travels to perceive and comprehend the object, decide on an appropriate response, react and complete the braking maneuver without hitting the object in its path.

(64) Traveled Way – The part of the road made for vehicle travel excluding shoulders and auxiliary lanes.

(65) Traversable Slope – A slope on which an errant vehicle will continue until it reaches the bottom, without having the ability to recover control. Fill slopes steeper than 4H:1V, but no steeper than 3H:1V are considered traversable.

(66) Trip – A one-direction movement that begins at the origin and ends at the destination.

(67) Trip Distribution – The process by which the movement of trips between zones is estimated. The data for each distribution may be measured or estimated by a growth factor process or by a synthetic model.

(68) Trip End – A single or one-direction vehicle movement with either the origin or the destination (exiting or entering) inside the study area. For trip generation purposes, the total trip ends for a land use over a given period of time are the total of all trips entering plus all the trips exiting a site during a designated time period.

(69) Trip Generation – A general term describing the analysis and application of the relationships that exist between the trip makers, the traffic study area, and the trip making. It relates to the number of trip ends in any part of the traffic study area.

(70) Unopened Right-of-Way – A County right-of-way that exists by dedication or deed, but for which no public vehicular roadway has been constructed.

(71) Urban Areas – Areas so designated in the Lewis County Urban Area Map that are characterized by denser commercial/industrial and residential development. OR any land area within the boundaries of the federally-designated urban areas (population over 5,000) as shown on the official urban area maps on file at WSDOT.

(72) Urban Growth Area – The area designated by a county pursuant to RCW 36.70A.110. Within such areas, urban growth shall be encouraged and outside of

such areas growth can occur only if it is not urban in nature.

(73) Utility – A company providing public service including, but not limited to gas, oil, electric power, street lighting, telephone, telegraph, water, sewer, or cable television, whether or not such company is privately owned or owned by a governmental entity.

(74) WSDOT – Washington State Department of Transportation. [Ord. 1183, 2003]

#### **12.60.040 Specifications.**

(1) Except where these Standards provide otherwise, or by contract with the County, all design and construction, including materials, shall be in accordance with the relevant sections of the following publications:

- (a) Lewis County Code
- (b) Lewis County Comprehensive Plan, Transportation Section
- (c) Lewis County Land Use and Development Procedures
- (d) Lewis County Stormwater Management Ordinance, Chapter 15.45 LCC.

(2) The most current edition as amended of the following publications and manuals shall be applicable when specifically cited in the Standards or when required by state or federal funding authorities:

- (a) Standard Plans for Road, Bridge and Municipal Construction, published by the Washington State Department of Transportation (WSDOT).
- (b) Standard Specifications for Road, Bridge and Municipal Construction, published by WSDOT.
- (c) Design Manual, published by WSDOT.
- (d) Local Agency Guidelines (LAG Manual), published by WSDOT.
- (e) A Policy on Geometric Design of Highways and Streets, published by the American Association of State Highway and Transportation Officials (AASHTO).

(f) Roadside Design Guide, published by AASHTO.

(g) Manual on Uniform Traffic Control Devices, published by the U.S. Department of Transportation, Federal Highway Administration, as amended and approved by WSDOT.

(h) Construction Manual, published by WSDOT.

(i) Trip Generation Manual published by Institute of Transportation Engineers, current edition.

(j) Standard Specifications for Highway Bridges, current edition, adopted by the American Association of State Highway and Transportation Officials, AASHTO Bridge Specifications.

(k) A Policy on Geometric Design of Rural Highways published by AASHTO, current edition.

(l) Lewis County Flood Hazard Management Plan.

(m) State of Washington Shoreline Management Act.

(n) Guidelines for Geometric Design of Very Low Volume Local Roads (ADT<400) published by AASHTO.

(o) Other specifications not listed above as may apply when required by Lewis County. [Ord. 1183, 2003]

#### **12.60.050 Exemptions**

(1) These standards shall not govern the following:

- (a) Maintenance work within public rights-of-way by County forces.
- (b) Temporary repairs on an emergency basis.
- (c) Restoration, Rehabilitation, and Resurfacing as defined in the LAG Manual.
- (d) Upgrading of existing private road, if within current easement and which does not exceed 5,000 square feet of added mineral aggregate, bituminous surface treatment, asphalt concrete, or cement concrete surfacing, and is not associated with any Lewis County development permit.

(e) Any roads, such as forest roads, which are regulated by the Washington State Department of Natural Resources, or other State or federal agency. [Ord. 1183, 2003]

#### **12.60.060 Design changes/deviations**

##### **(1) General.**

(a) These Standards indicate the appropriate practice under most conditions; however, are not intended to hamper the introduction of new ideas. Situations will present themselves where alternatives may be preferred to allow conformance with existing conditions, to overcome adverse topography, or to allow for more affordable solutions without adversely affecting capacity, safety, maintainability or aesthetics. These Standards are intended to provide predictability yet still allow for the flexibility necessary for innovation. The County Engineer, or designee, shall make the final determination of the adequacy of the design parameters and standards employed on a particular project. . The County Engineer, or designee, will decide a minor design change request. The County Engineer will decide a major design change request.

(b) In the event that representatives for a private development project disagree with a determination by the County Engineer, or wish to request a deviation from these Standards, they may do so by submitting to the County Engineer a Request for a Major or Minor Design Change. The County Engineer will classify a change request as Minor or Major.

##### **(2) Minor Design Change.**

(a) A Minor Design Change Request deals with the construction of facilities, rather than their general design, and is limited to the following when deviating from the standard specifications:

- (i) surfacing materials for roads or pedestrian facilities;
- (ii) asphalt and/or base rock thickness less than required;
- (iii) pavement marking layout;

(iv) exceeding the maximum road grade;

(v) type and/or location of signage;

(vi) channelization;

(vii) intersection interior angles and curb radii less than required;

(viii) utilizing the current set of standards in lieu of the standards that were in place when the applicant's proposed project was vested;

(ix) access-related modifications onto collectors and state routes, provided other substantive criteria such as sight distance and limited access points are met and, provided further, that access to a lesser classification of road is not available;

(x) field changes during construction;

(xi) hammerheads;

(xii) plans and profile requirements under Section II, LCC 12.60.140 et seq., for access and private roads servicing up to 2 single-family residences; and

(xiii) similar revisions to the standards.

##### **(3) Minor Design Change Request Process.**

(a) A Minor Design Change Request is an administrative process. The Minor Design Change Request shall be signed and sealed by a professional engineer, and shall meet the following criteria:

(i) The change will not otherwise result in non-compliance with the Road Standards or any other applicable code;

(ii) The granting of the change will not result in non-compliance with development conditions imposed upon a project by the Hearing Examiner or Board of County Commissioners;

(iii) The granting of the change will produce a compensating or comparable result that is in the public interest; and

(iv) The granting of the change will meet the objectives of safety, function,

appearance, environmental protection and maintainability based on sound engineering judgment.

(b) Minor Design Changes may be requested at any time by filing a written application with the County Engineer. The application shall include sufficient technical analysis to enable a reasoned decision. The County Engineer, or designee, shall provide a written decision based on the application, including findings listed in subsection (5)(a)(i)(A-D) below. No fee is applicable to the minor design change. Any final decision of the County Engineer may be appealed to the County Hearing Examiner pursuant to county procedures and regulations.

(4) Major Design Change/Deviation.

(a) A Major Design Change/Deviation deals with the vertical and horizontal geometrics and safety-related issues and includes the following when deviating from the standard specifications:

- (i) reduced sight distances;
- (ii) vertical alignment;
- (iii) horizontal alignment;
- (iv) geometric design (length, width, bulb radius, etc.)
- (v) design speed;
- (vi) crossroads;
- (vii) access policy;
- (viii) a proposed alternative design that will provide a plan superior to these standards; and
- (ix) all other standards.

(5) Major Change/Deviation Request Process.

(a) Private Project.

(i) Major Change/Deviation requests shall be processed in accordance with Chapter 17.160 LCC. The request shall be signed and sealed by a professional engineer. The County Engineer shall review the request and make a recommendation to the Hearing Examiner, including determinations of:

(A) Whether or not the deviation will result in non-compliance with

the Road Standards or any other applicable code;

(B) Whether or not the granting of the deviation will result in non-compliance with development conditions imposed upon a project by the Hearing Examiner or Board of County Commissioners;

(C) Whether or not the granting of the deviation will produce a compensating or comparable result that is in the public interest; and

(D) Whether or not the granting of the deviation will meet the objectives of safety, function, appearance, environmental protection and maintainability based on the opinion of the County Engineer.

(ii) The Hearing Examiner shall hold a public hearing and may grant a deviation in accordance with the provisions for deviations in Chapter 17.160 LCC.

(iii) A denial of a Major Change/Deviation Request by the Hearing Examiner may be appealed to the Lewis County Superior Court under Chapter 7.16 RCW, or where applicable, by Land Use Petition under Title 36 RCW, within twenty (20) days of the decision.

(b) County Road Project.

(i) Deviations to State and Federally-funded projects require the approval of the grant agency. Deviations to locally funded projects shall:

(A) document the need for a deviation;

(B) document the alternatives considered;

(C) document safety considerations as appropriate.

(ii) Deviations for County Road projects are exempted from the Hearing Examiner process. [Ord. 1183a §2&3, 2004; Ord. 1183, 2003]

**12.60.070 Project approval.**

(1) Detailed plans, prepared by a licensed engineer, must be submitted to the

County for plan review and approval prior to the commencement of any construction. The applicant's engineer shall be a Professional Engineer, registered as such in the State of Washington. All plans shall be approved by the County Engineer prior to the start of construction.

(2) The plans, reports, basin maps and calculations shall be signed, sealed and dated by the applicant's engineer.

(3) The approval of plans shall be valid for a time period of two years from the date of approval by the County Engineer. If reasonable progress, as determined by the County Engineer, is not made within this time period, then the plans shall be resubmitted to the County for review under current code and any revisions or modifications necessary to meet the current Standards shall be made. Re-submittal fees equal to the new application fees shall be paid before the plans are approved by the County.

(4) At the discretion of the County, errors and omissions in the approved plans or information used as a basis for such approvals may constitute grounds for withdrawal of any approvals and/or stoppage of any or all permitted work. It shall be the responsibility of the applicant to show cause why such work should continue, and make such changes in plans that may be required by the County before the plans are re-approved. [Ord. 1183, 2003]

#### **12.60.080 Site maintenance.**

(1) The applicant shall schedule and control the work so as to comply with all applicable provisions of County land use codes and applicable state and federal laws and regulations to prevent any hazards to public safety, health and welfare.

(2) On existing roads, two way and all existing lanes of traffic shall be maintained at all times unless detour plans have been approved in advance by the Traffic Engineer.

(3) Roads shall be kept free of dirt and debris.

(4) Pedestrian and bicycle facilities shall be kept free of obstructions.

(5) Pedestrian and vehicle access to occupied buildings shall be maintained except where written approval from the building owner has been obtained.

(6) Drainage facilities shall be maintained and fully functional.

(7) Best Management Practices (BMPs) shall be incorporated during new construction and maintenance of facilities. BMPs may include, but are not limited to, treatment requirements, operating procedures, or practices to control site runoff, spillage, waste disposal, drainage from raw material storage, and dust control.

(8) The abutting property owner is responsible for maintenance and repair of driveways, sidewalks and/or planter strips. [Ord. 1183, 2003]

#### **12.60.090 Bonding/financial guarantees.**

(1) Financial guarantees may be required by the County to guarantee the performance of work on roads intended to become public roads under the subdivision process. A financial guarantee shall be required for maintenance as outlined in subsection (2)(b) below. The type and amount of security shall be per Lewis County Code, or if not specified, shall be at the discretion of the County. Types of securities include but are not limited to a bond with a surety qualified to do a bonding business in this state, a cash deposit, an assigned savings account, a set aside letter or a letter of credit.

(2) Final Public Works approval shall not be given until all the required work is done and approved and the maintenance financial guarantee(s) is in place.

(a) Performance Guarantee. A Final Plat shall not be recorded and no building permit shall be issued until all Public Works improvements are completed and final approval is granted or, with the approval of

the County Engineer, a performance guarantee in an amount equal to 125 percent of the cost of the outstanding public works improvements, including the on-site storm system, is posted with the County. A cost estimate prepared by a licensed contractor or engineer, which includes engineering design, administration and construction costs, shall be submitted to the County for approval.

(b) Maintenance Guarantee. Prior to final Public Works approval, the permittee or the contractor for the permittee shall post with the County a maintenance guarantee for the Public Works improvements in an amount equal to 20 percent of the estimated cost of the improvements for a period of 18 months after the completed job is accepted by the County. Release of the guarantee will occur one year from the date of County acceptance if all maintenance has been accepted by the County.

(c) Payment in Lieu of. The property owner shall pay to the County an amount equal to the estimated value of the required frontage improvements as determined by the Public Works Director. Such amount shall be deposited into an account reserved for the financing of such improvement. Such payment shall be refunded in full, plus interest to the successor of the property should the County not install the required frontage improvements within five (5) years from the date such payment is made. [Ord. 1183, 2003]

#### **12.60.100 Road Improvement Districts.**

A Road Improvement District (RID) is a means of assisting benefiting properties to finance needed capital improvements through the formation of a special assessment district (RCW 36.88). Property owners may petition the County to initiate a RID. If a majority of the property owners in the proposed assessment district execute the petition, a public hearing is scheduled before the Board of County Commissioners. The

Board of County Commissioners may accept, modify, or deny the proposed district. [Ord. 1183, 2003]

#### **12.60.110 Violations and penalties.**

##### **(1) General.**

(a) Failure to comply with these Standards shall be cause for withholding or withdrawing approval of overall project plans, forfeiture of the financial guarantee submitted to the County, and/or non-acceptance of portions of the work by the County.

(b) The County may require the property owner to remove or replace illegal earthwork and/or other items associated with these Standards that were not properly permitted.

(c) Nothing contained herein supplants or replaces any greater penalty or other remedy provided under State or Federal law.

##### **(2) Enforcement Actions.**

(a) The County shall have the authority to enforce these Standards as well as other referenced or pertinent specifications. The County will appoint project engineers, assistants and inspectors as necessary to inspect the work and they will exercise such authority as the County Engineer may delegate.

##### **(3) Stop Work Orders.**

(a) Should the County become aware of conditions that invalidate the original design data used to obtain the permit or determine that the applicant is not complying with the conditions of the permit or approved plans, the County may revoke the original permit and/or order work stopped on the project. Examples of reasons why the County may order all or part of the permitted work stopped include but are not limited to the following:

(i) The applicant fails to comply with the conditions of the permit;

(ii) The permit was granted on the basis of erroneous or incomplete

information submitted to the County by the applicant or the applicant's agent;

(iii) The weather or weather-created conditions cause off-site or downstream drainage problems;

(iv) The work has created a condition that is a hazard to life, endangers property, or adversely affects the use or stability of a public way or drainage course.

(4) Cease and Desist Orders.

(a) The County may serve a cease and desist order for violations of this Chapter. The order shall include the following:

(i) Description of violation;

(ii) Effective date: (immediately upon receipt by the person to whom the order is directed);

(iii) Compliance: Failure to comply with terms of a cease and desist order can result in enforcement action including but not limited to issuance of a civil infraction citation;

(iv) Corrective measures.

(b) Request for hearing: The affected party may send a written request for a hearing to the Lewis County Hearing Examiner within 20 days of receipt of the cease and desist order.

(5) Civil Infraction. Any person, firm or corporation violating any provisions of these Standards shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not more than \$250.00 or by imprisonment for not more than 90 days as set forth in Chapter 1.20 LCC. Each person, firm or corporation found guilty of a violation shall be deemed guilty of a separate offense for each and every day during any portion of which any violation of any provision of these Standards is committed, continued or permitted by such person, firm or corporation and shall be punished therefore. [Ord. 1183, 2003]

#### **12.60.120 Severability.**

If any part of these Lewis County Standards as established by ordinance shall

be found invalid, all other parts shall remain in effect. [Ord. 1183, 2003]

#### **12.60.130 Fees.**

(1) Fees shall be assessed in accordance with the current Lewis County fee schedule as approved by the Lewis County Board of Commissioners.

(2) The applicant shall be responsible for costs incurred by the County for plan review, inspection and quality control. [Ord. 1183, 2003]

### **II. PLAN FORMAT**

#### **12.60.140 Applicability and standards.**

(1) When construction is required by conditions of a plat, subdivision, Special Use Permit, commercial and other projects or by these Standards, plans for the proposed improvements shall be prepared, meeting all of the requirements in these Standards. Failure to provide the requirements set out in this Chapter shall constitute an incomplete application and shall not be accepted for review.

(2) All road construction or reconstruction plans shall be prepared by and bear the stamp of a qualified Professional Engineer, licensed in the State of Washington. Final plans and profile drawings must be accepted by the County Engineer prior to the start of construction and recording of the development.

(3) Construction plans for roads accessing state highways shall be submitted by the Project Engineer directly to WSDOT. All requirements, signed agreement or approval for the intersection or road approach must be obtained by the developer before final plan approval will be granted by Lewis County. A copy of the approved plan from WSDOT shall be submitted to Lewis County before final plan approval. Where state requirements exceed these Standards, state standards shall govern. [Ord. 1183, 2003]

#### **12.60.150 Submittal procedure.**

(1) Plans, profiles and details shall be submitted on sheets 24" x 36" or 22" x 34".

(a) All plan submittal prior to approval shall include the following:

(i) Three complete sets of plans, profiles and details. (Refer to LCC 12.60.160 through -.190 for plan content requirements.)

(ii) Two sets of drainage calculations.

(b) Upon final design acceptance by the County Engineer, the following shall be submitted:

(i) One reproducible set of plans, profiles and details (Mylar or vellum) for the Engineer's review.

(ii) Five complete sets of County-reviewed plans, profiles, and details, stamped and signed by the project engineer.

(c) Changes to approved plans, profiles and details shall be submitted for review and acceptance prior to construction. The following shall be submitted:

(i) Three revised sets of plans, profiles, and details, along with a textual description summarizing the revision being requested; followed by:

(ii) Five copies of the signed revised plans, profiles and details.

(d) Final submittal shall be a complete set of "as-built" drawings on good quality reproducible Mylar 24" x 36" or 22" x 34". All changes to the original drawings shall be shown with a single line or XXXX on the as-built drawings. As-built drawings shall be submitted prior to final acceptance of any road, structure, drainage or facility for final acceptance by the County. Such drawings shall describe any and all revisions to the approved plans.

(e) As-built drawings shall include a description or summary of all changes to the original drawings in a text block on the plans. [Ord. 1183, 2003]

#### **12.60.160 Plan elements.**

(1) Cover Sheet. Road construction plans submitted to the County for review and approval shall have a plan cover sheet containing the following information:

(a) A vicinity map drawn to an appropriate scale showing the project and road system network.

(b) Easements, tracts, stormwater management facilities, all buffer and screening areas.

(c) Notes that are applicable to the project.

(2) For private projects, a site plan drawn to an appropriate scale showing the entire development and road system network, including its connection to an existing County road or state highway. In the event the site is too large for the required information to be shown for the entire project site, the site plan view must serve as an index to subsequent detailed plan sheets.

(3) Title block to include:

(a) Project Name:

(b) County assigned project or permit number:

(c) Sheet number:

(d) Road Name:

(e) Designed by:

(f) Drawn by:

(g) Checked by:

(h) Date of Drawing:

(i) Engineer name, firm, address, and phone number

(4) Legend (APWA Standard Symbols).

(5) 1/4, 1/4 Section, township, and range on each sheet.

(6) Scale: Standardized engineering scale shall be used; no scale smaller than 1"-100' will be accepted, unless it is the overall site plan sheet. Details for clarification may be shown at a convenient scale, normally 1" = 10' or 1" = 20'.

(7) North Arrow.

(8) Section and lot lines.

(9) All topographic features within right-of-way limits and sufficient area beyond to resolve questions of setback,

slope, stormwater management, access onto abutting property, and road continuations. This shall include, but is not limited to, ditch flow lines, utility locations, fences, existing curbing and approaches, pertinent trees and shrubbery, and other appurtenances that would affect the construction of the road.

(10) Typical roadway cross-section(s) of proposed road.

(11) Road alignments with 100-foot stationing, preferably increasing to the north or east and reading from left to right; stationing at points of curve, tangent, and intersection; ties to section or quarter corners at each end or other established and monumented survey control points; and each section crossing.

(12) Curve data, including, but not limited to, radius, point of intersections, delta, arc length and tangent length on all horizontal lines, point of curvature, and point of tangency.

(13) Indication of whether the roads are public or private.

(14) Bearings and distance on road centerline.

(15) Identification of all County roads and adjoining subdivisions when it is pertinent to the scope of the project.

(16) Edge of pavement and width.

(17) Sidewalks and width, if applicable.

(18) Right-of-way lines and widths for the proposed road and intersecting roads. The plans shall show dimensioned lot lines, tracts, easement areas, and lot numbers. Sufficient right-of-way location information shall be provided to geometrically tie the road location to the right-of-way location.

(19) Utilities and structures within and adjacent to the right-of-way.

(20) Easement type, width and ownership.

(21) Cut and fill quantities.

(22) Existing and proposed drainage features, indicating direction of flow, type of each drainage channel, pipe and structure.

(23) Size, invert in, invert out, rim elevations, station of structures and offsets

for all drainage facilities and other requirements as specified in the Chapter 15.45 LCC, Stormwater Management.

(24) All proposed utilities that will be constructed.

(25) Environmentally sensitive and critical areas, including buffers within project area.

(26) Existing wells within 200 feet of project limits. If there are no existing wells, such statement shall be included on the plan.

(27) Known existing drain fields within project limits.

(28) Beginning, quarter points, and ending elevations of curb returns.

(29) Existing centerline and gutter line grades for all frontage improvements.

(30) All existing utilities within project limits.

(31) Traffic control signing and signal layout.

(32) Pavement marking details with stations and offsets.

(33) At a minimum, control monuments shall be set at the beginning and end of a new road, cul-de-sac, angle points, point of curvature and point of tangency.

(34) For urban-style improvements, finished grade elevations shall be shown on:

(a) All radius returns at beginning, quarter points and end

(b) All cul-de-sacs at beginning, quarter points and end

(35) Temporary and permanent erosion control.

(36) Grading plans.

(37) Proposed roadway names.

(38) Other data necessary for the specific project. [See below, Exhibit 1 – Civil Plan Review Application, and Exhibit 2 – Plan Checklist.] [Ord. 1183, 2003]

#### **12.60.170 Profile elements.**

(1) Profile drawings of the project shall include the following information:

(a) Original ground line along center line, edge of pavement, ditch flow line or arrows, 25-foot stations through

superelevation, vertical curves, and at significant ground breaks and topographic features with accuracy to within 0.1 feet on unpaved surfaces and 0.02 feet on paved surfaces. When a road extends to the perimeter of the project, ground lines shall be extended at least 100 feet to show any changes in contour which might affect the profile of the proposed road.

(b) Existing and proposed road, sewer, water and storm drainage profile with stationing to show stationing of points of curve, tangent, and inner section of vertical curves, with elevations to 0.01 feet.

(c) Vertical scale: Standardized engineering scale shall be used. Clarifying details shall be shown at a convenient scale. Use 1" = 10' for vertical when horizontal plans are 1" = 100'.

(d) Values for grade and length of vertical curve shall be shown with the profiles on a numbered grid.

(e) Superelevation data shall be required and included for roadways of 30 miles per hour design speed or more.

(f) Vertical datum used on all benchmarks will refer to NGVD 1929 control, i.e. mean sea level. [Ord. 1183, 2003]

#### **12.60.180 Typical cross section.**

(1) A typical cross section shall include the following:

(a) Width of pavement, shoulders, walks, ditch and right-of-way.

(b) Type of road.

(c) Depth of gravel base, crushed surfacing and hard surfacing.

(d) Slope of crown, shoulder and ditch design.

(e) Total width from centerline to back of ditch, including width of new pavement on widening of existing roads.

(f) A separate, full-width roadway typical section for each road or portion of road having a different section, labeled with appropriate stationing (i.e. Sta. 10+00 to Sta. 12+36).

(g) Pivot point for superelevations.

(h) Location of existing and proposed utilities.

(i) All other data necessary for a specific project. [Ord. 1183, 2003]

#### **12.60.190 Intersection plan details.**

(1) When either of the road centerline profile grades within 35 feet of an intersection have a gradient less than or equal to 1% or greater than or equal to 8%, an intersection detail drawn to standardized engineering scale must be included as a detail on the plans. The detail will show spot elevations every 25 feet on the road centerline, around the radius return and grade elevations for drainage structures in the intersection. The intersection plan must be clearly detailed to show flow line grades and how surface drainage will be controlled at the intersection. Radius return data for lesser gradients shall be shown on the road drawings.

(2) Provisions for handicap access where applicable.

(3) Signalization plans, where applicable.

(4) Profile grades for all roads (public and private) intersecting onto a County road (existing or proposed) shall be designed and constructed so that intersection sight distance is available at the intersection. Refer to LCC 12.60.260, below. [Ord. 1183, 2003]

#### **12.60.200 Drainage and erosion control plan.**

Submittal shall be in accordance with LCC Title 15 & Chapter 15.45 Stormwater Management. [Ord. 1183, 2003]

#### **12.60.210 As-built drawings.**

Engineering as-built or record drawings for roads and drainage facilities will be required prior to final inspection approval. In some cases, these drawings will be required during the inspection process to

approve facilities before the next phase of construction can proceed. [Ord. 1183, 2003]

**12.60.220 Construction staking.**

All surveying and staking shall be performed by an engineering or surveying

firm capable of performing such work. The engineer or surveyor directing such work shall be licensed as a Professional Engineer or Professional Land Surveyor by the State of Washington. [Ord. 1183, 2003]

Exhibit 1:

**Public Works Department  
Lewis County  
350 N. Market Blvd.  
Chehalis, WA 98532**

**OFFICIAL USE ONLY**

**Date Received:** \_\_\_\_\_  
**Received By:** \_\_\_\_\_

CIVIL PLAN REVIEW APPLICATION	USE BLACK INK ONLY
Owner: _____ Address: _____ City & State: _____ Zip: _____ Phone: _____	PROPERTY LOCATION:  North South East West side of: (road name): _____  Between (road name) _____  And (road name) _____  Property Address: _____
Applicant: _____ Address: _____ City and State: _____ Zip: _____ Phone: _____	Section: _____ Township _____ Range _____  Assessors Parcel No. _____
Engineer: _____ Address: _____ City & State: _____ Zip: _____ Phone: _____	<b>FOR OFFICIAL USE ONLY</b>  <b>Fire District Requirements</b> _____ <b>Yes</b> _____ <b>No</b> <b>Fire Flow Required</b> _____ <b>gpm</b>  <b>Easements required</b> _____  <b>Right-of-way required</b> _____  <b>Bonding required</b> _____  <b>Miscellaneous</b> _____
SUMMARY OF REQUEST (List type of uses) _____ _____ _____ No. of proposed dwelling units: _____ Dimensions of property: _____  Total sq.ft. of site: _____ Total sq.ft. in buildings: _____ _____  Total sq. ft. in paved and covered surfaces (include buildings, driveways, streets, sidewalks, and parking lots) _____ _____	

A cursory check of the plans against the attached plan checklist will be made by the Development Engineer. If the plans meet the minimum checklist requirements as to content, they will be routed to the appropriate County staff and the plan review process will begin. If minimum checklist requirements are not met, plans will be returned to submitting engineer. [Ord. 1183, 2003]

Exhibit 2:

**PLAN CHECKLIST**

**STANDARD ITEMS:  
STREET AND STORM SEWER**

- ( ) Vicinity Map
- ( ) Legend (APWA Standard Symbols)
- ( ) North Arrow
- ( ) Scale Bar
- ( ) Datum - Bench Mark Elevation And Location (on all sheets where elevations are referenced)
- ( ) Title Block:
  - ( ) Title: ( ) Design By:
  - ( ) Drawn By:
  - ( ) Date:
  - ( ) Checked By:
  - ( ) Signature Approval Block (see above example):
  - ( ) Sheet Number of Total Sheets:
- ( ) Section, Township and Range (every plan/profile sheet)
- ( ) Engineers Stamp (signed and dated)
- ( ) Project Title (cover sheet)
- ( ) Utility System Map (showing all proposed utilities on one drawing)
- ( ) Revision Block

APPROVED FOR CONSTRUCTION BY:_____ DATE:_____ Director of Public Works  APPROVAL EXPIRES:_____
---

**PLAN PORTION STANDARD ITEMS**

- ( ) Centerline and Stations
- ( ) Edge of Pavement and Width
- ( ) Right-of-Way and Width
- ( ) Proposed Survey Monumentation Locations and Details
- ( ) Sidewalk and Width
- ( ) Roadway Sections
- ( ) Existing Utilities (above and below ground)
- ( ) Adjacent Property Lines, Ownership, Parcel Number, and Street Address
- ( ) Identify Street Names, Right-of-Way, Lots
- ( ) Identify Match Existing Sheet Numbers and Stations
- ( ) Easements, Width and Type
- ( ) Define Survey Baselines
- ( ) Stations for Structures
- ( ) Flow Direction Arrows

## **PROFILE PORTION STANDARD ITEMS**

- ( ) Profile Grades (decimal FT./FT.)
- ( ) Existing Ground
- ( ) Scale (horizontal and vertical)
- ( ) Stationing
- ( ) Vertical Elevation Increments
- ( ) Existing Utilities (if available)

### Misc.

- ( ) Detail Sheet
- ( ) General Notes

## **STORM SEWER**

- ( ) Drainage and Erosion Control Plan Report
  - ( ) Cover sheet
  - ( ) Table of Contents
  - ( ) Section 1 - Proposed Project Description
  - ( ) Section 2 - Existing Conditions
  - ( ) Section 3 - Infiltration Rates/Soils Report
  - ( ) Section 4 - Wells
  - ( ) Section 5 - Fuel Tanks
  - ( ) Section 6 - Sub-Basin Description
  - ( ) Section 7 - Analysis of the 100-Year Flood
  - ( ) Section 8 - Aesthetic Considerations for Facilities
  - ( ) Section 9 - Downstream Analysis
  - ( ) Section 10 - Covenants, Dedications, Easements
  - ( ) Section 11 - Homeowners - Articles of Incorporation
  - ( ) Project Engineers Certificate
  - ( ) Facility Summary Form
  - ( ) Engineer's Estimate
- ( ) Erosion Control Plan Report
  - ( ) Section 1 - Construction Sequence and Procedure
  - ( ) Section 2 - Trapping Sediment
  - ( ) Section 3 - Permanent Erosion Control and Site Restoration
  - ( ) Section 4 - Geotechnical Analysis and Report
  - ( ) Section 5 - Inspection Sequence
- ( ) Drawings and Specification
  - ( ) Vicinity map
  - ( ) Project Boundaries
  - ( ) Sub-Basin Boundaries
  - ( ) Off-Site Area Tributary to Project
  - ( ) Contours
  - ( ) Major Drainage Features
  - ( ) Flow Path
- ( ) Site Map
  - ( ) Existing Topography at Least 50 Feet Beyond Site Boundaries
  - ( ) Finished Grades
  - ( ) Existing Structures within 100 Feet of Project Boundary
  - ( ) Utilities
  - ( ) Easements, Both Existing and Proposed

- ( ) Environmentally Sensitive Area
- ( ) 100-Year Flood Plain Boundary
- ( ) Existing and Proposed Wells within 1,200 feet of Proposed Retention Facility
- ( ) Existing and Proposed Fuel Tanks
- ( ) Existing and Proposed On-Site Sanitary Systems within 100 Feet of Detention/Retention Facilities
- ( ) Proposed Structures Including Roads and Parking Surfaces
- ( ) Lot Dimensions and Areas
- ( ) Proposed Drainage Facilities and Sufficient Cross-Section and Details to Build
- ( ) Plan View - Conveyance System
  - ( ) Station and Number at each Manhole/Catch Basin
  - ( ) Manhole/Catch Basin Type and Size
  - ( ) Manhole/Catch Basin Rim Elevation
  - ( ) Flow Direction with Arrow on Pipe/Channel
  - ( ) Type and Size of Pipe
  - ( ) Length of Pipe in Lineal Feet
- ( ) Profile View - Conveyance System
  - ( ) Station and Number at each Manhole/Catch Basin
  - ( ) Rim Elevation
  - ( ) Invert In and Out
  - ( ) Length of Pipe (in L.F.)
  - ( ) Grades (FT./FT.)
  - ( ) Design Velocity
- ( ) Work Map
  - ( ) Unit Areas (including Off-Site Contributing Areas)
  - ( ) Percentage Impervious
  - ( ) Average Slope
  - ( ) Estimated Ultimate Infiltration Rate
  - ( ) Conveyance Date, Identifier (for Reference to Model Output), Length, Slope, Inverts
  - ( ) Overland Flow Paths and Distances
  - ( ) Soil Types
  - ( ) Spot Water Surface Elevations, Discharges and Velocities for the Design Event
- ( ) Erosion Control Drawing
  - ( ) Soil Types
  - ( ) Locations of Soil Pits and Infiltration Tests
  - ( ) Construction Entrance Detail
  - ( ) Silt Fences and Traps
  - ( ) Mulching and Vegetation Plan
  - ( ) Clearing and Grubbing Limits
  - ( ) Existing and Finished Grade
  - ( ) Details and Locations of all BMPs Recommended
  - ( ) Location and Details of Temporary Sediment Ponds
- ( ) Maintenance Report
  - ( ) Required Type and Frequency of Long-Term Maintenance
  - ( ) Identification of Responsible Maintenance Organization
  - ( ) Frequency of Sediment Removal
  - ( ) Cleaning of Catch Basins

- ( ) Vegetation Control
- ( ) Annual Cost Estimate of Maintenance
- ( ) Construction Inspection Report

Misc.

- ( ) Detail Sheet
- ( ) Storm General Notes

**STREET**

Plan View:

- ( ) Flow Direction Arrows at Curb Returns Showing Grade
- ( ) Spot Elevations on Curb Returns
- ( ) Station PC, PT, PI, and Intersections
- ( ) Curve Information Delta, Radius, Length and Tangent
- ( ) BCR and ECR (Begin Curb Radius, End Curb Radius)
- ( ) Identify All Field Design Situations
- ( ) Typical Sections
- ( ) Pavement Marking Details With Station and Offset
- ( ) Sidewalks
- ( ) Driveway Entrances
  - ( ) Station
  - ( ) Width, Material ( AC, PCC)
  - ( ) Driveway Type
- ( ) Curb Ramps - Detail and Type
- ( ) Public Transit Facilities and Bus Stops

Profile View:

- ( ) Vertical Information VPI, BVC, EVC, AP, Low Point, High Point
- ( ) Show Grades in Decimal Form with (+ or -) Slope
- ( ) Super Elevated Roadways
  - ( ) Detail - Show Transitions
  - ( ) Special Detail Showing Gutter Flowing Adequately

Misc.

- ( ) Detail Sheet
- ( ) Street General Notes
- ( ) AASHTO Street Design Worksheet, With Soils Report, if Applicable

[Ord. 1183, 2003]

### **III. ROAD AND BRIDGE STANDARDS**

#### **12.60.230 Applicability and standards.**

Each lot shall be served by a road built to applicable County standards set forth in this Section for public and private roads. The applicable standard is determined by the density and type of land use, roadway functional class, design speed and traffic volume (ADT). Characteristics of low-volume roads in rural areas differ substantially from those in urban areas and, therefore, the design guidelines for urban and rural roads also differ. [Ord. 1183, 2003]

#### **12.60.240 Roadways.**

(1) Roadways in Urban Growth Areas.

(a) Unless otherwise provided for, roadway construction and improvement within unincorporated Lewis County shall comply with the Lewis County Road Standards. Where specific city road standards have been adopted and incorporated by the County in conjunction with an inter-local agreement with a particular city for its urban growth area, city standards shall apply. For cities that do not have adopted road standards, or for cities that do not have an inter-local agreement with Lewis County, and for County UGA's not attached to cities, the County standards shall apply.

(b) Where city standards are deemed to apply to roadway construction and improvements, if it appears that incorporated city road standards produce an unacceptable result in the opinion of the County Engineer, the County Engineer shall notify the particular city of the County's objection. That city shall provide written comments to the County Engineer outlining the city's position within 15 days of such notification. The County Engineer shall make a determination within five days of the receipt of the city's comments or within twenty days from date of notification to the city as

to what requirement shall apply, considering any timely comments submitted by the city.

(2) Roadways in areas of more intense development. All roadway construction within an area of more intense development may utilize either an urban style roadway section or a rural style. The actual roadway design may vary depending on zoning, adjacent land uses, surrounding transportation system, scope of project, and transportation impact analysis.

(a) Rural area urban style access/collector road: This roadway is classified as a neighborhood collector or local access street. It collects or distributes traffic within a neighborhood and provides a connection to an arterial or major collector. Access to abutting land uses is provided.

(i) The urban style road section is illustrated in Standard Detail 3-1 located at the end of this Chapter. Examples of urban style roads are shown in Figures III-1 and III-2 below.



Figure III-1: An example of a Rural Area Urban Style Access / Collector Road—Carlisle Avenue in Onalaska.



Figure III-2: A Rural Area Urban Style Access/Collector Road—Dieckman Road in Adna.



Figure III-3: Jackson Highway is classified as a Rural Major Arterial

(3) Roadways in rural areas. All roadway construction and improvement within rural areas of Lewis County will comply with the rural roadway standards as set forth in this Section. These functional classifications are established to provide for intended operating characteristics of the roads.

(a) Rural area arterial: Rural arterials are connected rural routes that provide an efficient direct route for long distance travel within the region. They form a rural network linking cities and larger towns, providing for relatively high overall travel speeds and minimum interference to through movement.

(i) The rural area arterial has an existing or projected average daily traffic volume (ADT) above 2000.

(ii) The arterial section is illustrated in Standard Detail 3-2 at the end of this Chapter. Figures III-3 and III-4 below show Lewis County examples of Rural Area Arterials.



Figure III-4: Harrison Avenue is classified as Urban Arterial.

(b) Rural area collector road: A collector road provides connections between an arterial and concentrations of residential and commercial activities. The amount of through traffic is less than on an arterial. The collector is designed for an existing or projected ADT of 401-2000.

Standard Detail 3-3 located at the end of this Chapter illustrates the collector roadway section. Figure III-5 below shows a Rural Collector in Lewis County.



Figure III-5: Bunker Creek Road just outside of Adna, is classified as a Rural Collector.



Figure III-6: Ceres Hill Road is a Very Low Volume Rural Area Public Access Road.

(4) Very low-volume local roads. AASHTO defines a very low volume road as: "A road that is functionally classified as a local road and has average daily traffic volume of 400 vehicles per day or less." A local road is a road whose primary function is to provide access to residences, farms, businesses or other abutting property, rather than to serve through traffic.

(a) Very low-volume rural area public access road: This roadway is designed for average daily traffic of less than 400 vehicle trips per day. The typical Very Low Volume Rural Area Public Access road section is illustrated in Standard Detail 3-4 at the end of this Chapter.

(b) Very low-volume rural area private access road. This roadway is designed for average daily traffic of less than 400 vehicle trips per day. The design of the roadway varies depending on the projected average daily traffic volume.

(i) The very low-volume rural area private access road for 100-400 vehicle trips per day is illustrated in Standard Detail 3-5 at the end of this Chapter. The roadway section for less than 100 vehicle trips per day is illustrated in Standard Detail 3-6.

(ii) Figures III-6 and III-7 below are examples of Very Low Volume roadways.



Figure III-7: A private road into the gated community of Salkum Heights.

[Ord. 1183, 2003]

#### **12.60.250 Maximum grades.**

(1) Acceptable grade to assure property emergency access, sight distance, reasonable operating speeds for trucks, acceptable snow and ice factors, and stormwater management is an important consideration. Tolerable maximum grades will vary with road use and location.

(2) Grades exceeding the maximum grades specified in Road Section Standard Details 3-1 through 3-6 (located at the end of this Chapter) shall require approval by the County Engineer and County Fire Marshall or Fire District, whichever is applicable, upon a showing that no practical alternative exists. [Ord. 1183, 2003]

#### **12.60.260 Sight distance.**

(1) The calculation of sight distance for stopping, decision, passing, and intersections is discussed in AASHTO's "A Policy on Geometric Design of Highways and Streets", WSDOT's "Design Manual" and AASHTO's "Guidelines for Geometric Design of Very Low Volume Local Roads". Sight distance is the length of roadway visible to the driver. Intersections should be planned and located to provide as much sight distance as possible. At a minimum, the intersection sight distance must provide sufficient sight distance for the driver on the minor roadway to cross or turn left onto the major roadway without requiring approaching traffic to reduce speed to less than 70% of the speed limit.

(2) All stopping sight distance calculations for hard-surfaced roads shall be based on appropriate AASHTO guidelines, including supplemental volumes, with adjustments for grades and proximity to intersections. [Ord. 1183, 2003]

#### **12.60.270 Private roads.**

(1) A private road is defined as "Private vehicular access provided by an access tract, easement, or other legal means to serve property that is privately owned and maintained." The purpose of private road standards is to provide an option to retain rural character, reduce costs to serve large rural lots, and allow more control, security, and sense of identity when public roads are not needed for public circulation.

(a) Private roads are approved only when the County Engineer has approved the road location and all criteria in LCC 16.05.090 have been met.

(b) The design of the roadway varies depending on the projected average daily traffic volume. The Very Low Volume Rural Area Private Access Road for 100 - 400 vehicle trips per day is illustrated in Standard Detail 3-5 at the end of this Chapter. The roadway section for less than

100 vehicle trips per day is illustrated in Standard Detail 3-6.

(c) Private roads must be accessible at all times for emergency and public service vehicle use.

(d) The following statement is required on the face of any plat, short plat, site plan or binding site plan containing a private road:

WARNING: Lewis County has no responsibility to build, improve, maintain, or otherwise service the private roads contained within or providing access to the property described in this [plat / short plat / large lot subdivision / binding site plan]

[Ord. 1183, 2003]

#### **12.60.280 Driveways.**

(1) A driveway is defined as an access from a public right-of-way or private access easement onto private property.

(2) Standard Detail 3-7 at the end of this Chapter illustrates a standard commercial or residential driveway approach.

(3) General.

(a) A Road Approach Permit shall be obtained from Lewis County prior to accessing any County road. Horizontal and vertical alignment and width shall be as designated by the County Engineer or his representative and so stated on the permit.

(b) Driveways shall be of sufficient length so a vehicle in the driveway does not project into the road right-of-way, sidewalk, or pathway.

(c) The location of road approaches must be consistent with the regulations in these Standards. Joint use driveways are encouraged; however, single use driveways must not infringe on the frontage of adjoining property.

(d) Surface drainage consistent with current stormwater standards must be provided by the applicant unless otherwise stated in the Road Approach permit. The

drainage under fill areas and in roadway ditches must be large enough to carry the water that accumulates in the roadway ditches and in no case shall the size of the pipe be smaller than 12 inches or as directed by the County Engineer.

(e) An approved turnaround shall be required on any driveway over 150 feet in length.

(4) Residential Driveways / Private Roadways.

(a) Residential driveways are those constructed on private property to serve one to four single family residential units. If the length exceeds 150 feet, then it is classified as a private road and must conform to Standard Detail 3-8.

(b) For new driveways, access to a public road shall be limited to one driveway for each legal lot of record. This does not preclude multiple properties accessing from one driveway. Multiple accesses may be approved by the County Engineer based on local circumstances.

(c) Urban Style Residential Driveways.

(i) In new construction, residential driveways shall not be permitted to access arterials or collectors unless the property has no other reasonable access to the general street system.

(ii) If the property has no other reasonable access, it shall be allowed to access an arterial or collector if more than 150 feet from the nearest right-of-way line of an intersecting street. The driveway shall access the roadway with the lower functional classification.

(iii) Residential driveway approaches in urban areas shall be constructed to standards illustrated in Standard Detail 3-9, located at the end of this Chapter.

(d) Rural Residential Driveways.

(i) Residential driveway approaches in rural areas shall be constructed to standards illustrated in Standard Detail 3-10.

(e) Commercial or Public Driveways.

(i) Commercial or public driveways are those driveways constructed on private property to serve commercial, industrial and multifamily projects.

(ii) Access to a public street shall be limited to one public driveway connected to the lowest classified roadway for each tract of property separately owned. Property fronting more than one public street may be permitted an access to each public street if the Traffic Impact Analysis supports multiple accesses. Two or more public driveways accessing a public street will only be allowed with the approval of the County Engineer. Properties contiguous to each other and owned by the same person are considered to be one tract.

(A) Urban Style Commercial Driveways. An engineer shall design commercial driveways with safety being the primary design criteria. The following criteria shall apply to all commercial driveways:

(I) Commercial properties shall provide internal connections between neighboring properties. Developments must give priority to internal access before access to the public roadway system is permitted. Cross access allows vehicles to circulate between commercial properties without having to re-enter the public street system. All driveways shall meet the access spacing standards in LCC 12.60.630.

(II) No commercial driveway shall be approved where backing onto the sidewalk or street will occur.

(III) Urban style commercial driveways shall be constructed to standards illustrated in Standard Detail 3-9. Standard Detail 3-11 illustrates a reverse slope driveway.

(5) Rural Commercial Driveways.

(a) Commercial driveways in rural areas shall be constructed to standards illustrated in Standard Detail 3-9, located at the end of this Chapter.

**(6) Emergency Access Roads.**

(a) This section applies to Emergency Access Roads outside of the public right-of-way.

(b) An emergency vehicle access road shall be provided as defined by adopted and applicable provisions of the Uniform Building Code and may be required for certain projects. An Emergency Access Road is not a main egress/ingress road, but a road with a sole purpose of emergency access.

(i) The emergency access road shall be constructed with an all-weather surface to adequately support the proposed loads of emergency vehicles.

(ii) The structural section of a permanent fire access road shall meet the same requirements as those for a Very Low Volume Rural Area Private Access Road illustrated in Standard Details 3-5 and 3-6 (located at the end of this Chapter).

(iii) Maximum grade for an emergency access road is 15%.

(iv) Unless otherwise approved by Lewis County, turnarounds shall be required for any required emergency access road exceeding 150 feet in length. Turnarounds shall be a cul-de-sac meeting the requirements of these Standards.

(v) An unobstructed vertical clearance of not less than 14 feet in height shall be maintained for the required width of the emergency vehicle access road.

(vi) The emergency vehicle access road shall be shown on the site plan.

(vii) The emergency vehicle access road shall be maintained in accordance with these Standards by the property owner.

(viii) Gates may be permitted and shall meet all the requirements of LCC 12.60.650 of these Standards.

(ix) “No Parking–Fire Lane” signs shall be provided when and where required by Lewis County. [Ord. 1183, 2003]

**12.60.290 Cul-de-sacs and dead-end roads.**

**(1) Temporary Dead End Roadways:**

(a) Where a street is temporarily dead ended, turnaround provisions and a barricade meeting MUTCD standards must be provided where the road serves more than one lot. Refer to Standard Detail 3-12 for cul-de-sac detail. Hammerheads may be allowed in commercial or industrial areas, consistent with LCC 12.60.060, Design Change/Deviations. Refer to Standard Detail 3-12a for hammerhead detail.

(b) Temporary dead ends or a shared access may be required for subdivisions where the potential for future connectivity exists due to the proximity of underdeveloped properties.

(c) If a road more than 150 feet in length temporarily terminates at a property boundary, a temporary turnaround cul-de-sac bulb consistent with this Standard shall be constructed near the plat boundary. Removal of the temporary turnaround shall be the responsibility of the developer who extends the road.

**(2) Permanent Dead End Roadways:**

(a) Permanent dead end roadways in excess of 600 feet are discouraged and shall not be allowed except with the approval of the County Engineer in cases where geographical, topographic or environmental conditions preclude street connections.

(b) A cul-de-sac shall be required on any dead end access road between 150 and 600 feet in length. Refer to Standard Detail 3-12 for cul-de-sac detail. Dead-end roads in excess of 600 feet may be considered if the number of lots served doesn't exceed 50 and an emergency turnaround is provided near mid-length.

(c) A gate installed over a private driveway shall be considered a dead end

road, and shall require a turnaround consistent with these Standards. [Ord. 1183, 2003]

#### **12.60.300 Intersections.**

(1) An intersection may be any access point, whether a public street or a public or private driveway, onto a County road. See Section VI and LCC 12.60.570 et seq., for access management criteria. See, LCC 12.60.270, for driveway access issues.

(a) Street intersections shall be laid out so as to intersect as nearly as possible at right angles. Sharp angled intersections shall be avoided. The angle of an intersection on new construction shall not be less than 75° or more than 105°.

(b) On sloping approaches at an intersection, landings shall be provided with grade not to exceed 3% slope for a distance of 30 feet approaching any arterial or 20 feet approaching a collector or local access road. [Ord. 1183, 2003]

#### **12.60.310 Dedications.**

(1) Right-of-way dedication at a minimum shall be in accordance with the applicable standard roadway section as set out in Standard Details 3-1 through 3-6 (located at the end of this Chapter) to accommodate motorized and non-motorized transportation, parking, utility and buffer requirements.

(2) The County Engineer may require the dedication of additional right-of-way as a condition of project approval to provide the necessary right-of-way for the extension of existing and future roads for compatibility with the area's circulation system. [Ord. 1183, 2003]

#### **12.60.320 Railroad grade crossings.**

All proposed railroad crossings shall be submitted to and approved by the railroad and the Utilities and Transportation Commission. [Ord. 1183, 2003]

#### **12.60.330 Traffic control.**

(1) An applicant who is working in public right-of-way shall be responsible for all traffic control in accordance with the "Manual on Uniform Traffic Control Devices" (MUTCD) or as modified by the Traffic Engineer. Prior to the disruption of any traffic, a traffic control plan shall be prepared and submitted to the County for approval. At no time shall a roadway be blocked without the approval of the County. No work shall commence until the County has approved the plan and traffic control is in place.

(2) During any construction, barriers and warning signs shall be erected, lighted and maintained as necessary or as directed by the County for the protection of the traveling public. The County may hire or use County forces to bring traffic control up to the safety standards set out in the MUTCD, WSDOT "Design Manual" and other applicable documents at the applicant's expense when the safety of the traveling public is at risk.

(3) Two-way traffic shall be maintained at all times unless specifically approved on the traffic control plan. Flaggers shall be shown on the traffic control plan except for emergency situations. The applicant is responsible for traffic control signing in accordance with MUTCD requirements.

(4) All lane restrictions shall be held to a minimum time and length. Lane closures shall comply with the traffic control plans, the MUTCD, and the WSDOT "Standard Plans".

(5) Road closures are allowed only when no viable alternative exists. Closures will be permitted for a specific duration and requests must be submitted a minimum of three weeks prior to the closure.

(6) Flaggers shall possess a current flagging card issued by the State of Washington prior to performing any traffic control work on a project. Workers engaged in flagging shall wear reflective clothing and

hard hats. Flagger's paddles shall meet MUTCD standards. [Ord. 1183, 2003]

#### **12.60.340 Roadside obstacles.**

(1) Existing or new roadside features which could present a hazard to the public shall be placed outside of clear zone areas unless justified to the County Engineer's satisfaction by suitable engineering studies considering traffic safety, or where shielded by a barrier, placed in an area normally inaccessible to vehicles, or utilize a breakaway design. If barriers are required, they shall be designed to AASHTO and WSDOT standards.

(2) Locations of poles shall be compatible with driveways, intersections, and other roadside features. They shall not interfere with sight distance, roadway signing, traffic signals, culverts, etc.

(3) Costs of relocating poles or obstacles to achieve these Standards are the responsibility of the applicant/developer whose project necessitates compliance with these Standards. On public projects, relocation costs will be the responsibility of the utility company, consistent with the franchise agreement. [Ord. 1183, 2003]

#### **12.60.350 Roadway bases and surfacing.**

(1) The following apply to both public and private roads:

(a) For public and private roads with less than 401 ADT, surfacing requirements for each application are as illustrated in Standard Details 3-4 through 3-6.

(b) For public and private roads with over 400 ADT, alternate pavement and surfacing designs will be accepted based on AASHTO guidelines.

(2) The following apply to public roads and roads proposed as public roads.

(a) One soil sample per each 500 lineal feet of centerline with 3 minimum per project representative of the roadway subgrade shall be taken to determine a statistical representation of the existing soil conditions.

(b) The pavement and surfacing design, signed and stamped by an engineer licensed by the State of Washington, shall be based on actual soils tests and submitted with the plans. All depths indicated are a minimum compacted depth.

(c) Fire access road structures shall meet the standards as required for a Very Low Volume Local Access Road. Alternate materials, e.g. paving tiles or gravel, may be approved provided the structure is designed to support fire apparatus vehicles.

(d) The entire subgrade and all surfacing material shall be compacted with approved compaction equipment to 95% of material's maximum density in accordance with Method C of State Standard Specifications.

(e) The application of any asphalt to the roadway shall be restricted to the following conditions:

(i) Asphalt shall not be applied before any imminent storms that might damage the construction. The County will have the discretion as to whether the surface and materials are suitable to proceed with asphalt paving.

(ii) The County may require the contractor to delay application of asphalt until the atmospheric and roadway conditions are satisfactory. [Ord. 1183, 2003]

#### **12.60.360 Bridges.**

(1) Bridges on Public Roads.

(a) Except as specified below, Lewis County bridges on public roads shall be designed and constructed according to the latest edition of "Standard Specifications for Highway Bridges" adopted by AASHTO, including all interim addenda. Bridge and approach railings shall be provided in accordance with AASHTO Bridge Specifications or with AASHTO "Guide for Selecting, Locating, and Designing Traffic Barriers". Final plans and structural computations shall be submitted by a Structural Engineer or qualified Professional

Engineer, licensed in Washington State, to the County Engineer before construction begins.

(a) Bridge width on new bridges shall comprise the full width of the road being served. This includes the traveled way, curb, sidewalk, walkway, bike lanes, equestrian lanes and/or shoulders. Requirements of utilities shall be duly considered and provided for.

(b) The width of the bridge shall be measured between curbs or between faces of rails, whichever is less, but in no case shall bridges on roads with an ADT greater than 400 be less than 28 feet in width.

(c) Overhead vertical clearances shall be no less than 16 ½ feet.

(2) New Bridges on Private Roads.

(a) On a private road, bridges built in conjunction with any permit or approval of Lewis County, a Structural Engineer or qualified Professional Engineer, licensed in Washington State, shall prepare the plans. The Engineer shall submit the following:

(i) A letter, stamped and signed by the Engineer, certifying the structure has been designed to accommodate all anticipated traffic loads, including fire apparatus.

(ii) A copy of the Hydraulics Permit issued by Washington State Department of Fish & Wildlife.

(iii) A certification that the structure has been built to approved plans.

(iv) Although not required under these Standards, a maintenance and periodic inspection (M&I) plan, identifying reporting tactics and responsible parties for maintenance and repairs.

(3) Existing Bridges on Private Roads.

(a) On an private road utilizing an existing bridge in conjunction with any permit or approval of Lewis County, a Structural Engineer or qualified Professional Engineer, licensed in Washington State, shall submit the following:

(i) A written confirmation from the District Fire Chief that district fire apparatus and vehicles can safely utilize the bridge. If such written confirmation cannot be obtained, certification by a Structural Engineer or qualified Professional Engineer, licensed in Washington State, that fire apparatus and aid vehicles can safely utilize the bridge will be required.

(iii) A maintenance and periodic inspection plan, identifying reporting tactics and responsible parties for maintenance and repairs. [Ord. 1183, 2003]

**12.60.370 List of drawings.**

SECTION III - ROAD STANDARDS

<b>Title</b>	<b>Drawing</b>
Urban Style Road Section Rural Area .....	3-1
Arterial Road Section Rural Area.....	3-2
Collector Road Section Rural Area.....	3-3
Very Low Volume Public Access Road (ADT: Less than 400) .....	3-4
Very Low Volume Private Access Road (ADT: 100-400) .....	3-5
Very Low Volume Private Access Road (ADT: Less than 100) .....	3-6
Residential & Commercial Driveway .....	3-7
Optional Driveway Standard Detail: 1-4 Residences .....	3-8
Curb and Gutter Driveway Section.....	3-9
Rural Residential Driveway .....	3-10
Reverse Slope Curb and Gutter Driveway Section.....	3-11
Cul-de-sac Detail .....	3-12
Hammerhead Detail .....	3-12a
(Drawings below) [Ord. 1183, 2003]	

#### **IV. TRAFFIC ANALYSIS GUIDELINES**

##### **12.60.380 Purpose.**

(1) A Traffic Impact Analysis (TIA) is a specialized study of the impacts a certain type and size of development will have on the surrounding transportation system. The traffic impact analysis is an integral part of the development impact review process. It is specifically concerned with the generation, distribution, and assignment of traffic to and from the proposed development. The purpose of a TIA is to determine what impact development traffic will have on the existing and proposed street network and what impact the existing and projected traffic on the street system will have on the proposed development.

(2) These guidelines have been prepared to establish the requirements for a Traffic Impact Analysis. The Traffic Engineer will be the person responsible under SEPA as well as County ordinances for determining the need for a Traffic Impact Analysis. The Community Development Department and Public Works staff will also have a significant role during the TIA process. [Ord. 1183, 2003]

##### **12.60.390 Level of analysis.**

(1) To adequately assess a proposed development traffic impact on the transportation system and level of traffic service, the Public Works Department may require a Traffic Impact Analysis (TIA). The requirement for a TIA will be based on the size of the development proposed, existing street and intersection conditions, traffic volumes, traffic safety considerations, community concerns, and other pertinent factors relating to traffic impacts attributable to proposed developments. The proponent of a proposed development or redevelopment has the responsibility of preparing, for County review, a Traffic Impact Analysis (TIA) as required below:

(a) Level I TIA. Trip Generation and Distribution Study. (Refer to Example 1 at the end of this section for Level I TIA Sample Outline.)

(b) Level II TIA. Traffic Impact Analysis. [Refer to Exhibit 3, below, for sample outline.] [Ord. 1183, 2003]

##### **12.60.400 Warrants for level I traffic impact analysis.**

(1) A complete Level I TIA shall be required if any one of the following warrants is met:

(a) The project generates 50 or more PM peak hour (two-hour peak average) trips; or

(b) At the County's discretion, if the project requires a SEPA review.

(c) At the County's discretion, if there are existing and projected traffic volumes, accident history, and other operational considerations.

(2) A trip generation/waiver request may be submitted by a licensed engineer if the project doesn't trigger County requirements for a traffic impact analysis.

(3) A Level I TIA may be required by the County to determine the need and scope of a Level II TIA. A Level I TIA may be expanded to a Level II TIA if any of the warrants in LCC 12.60.400 are met. [Ord. 1183, 2003]

##### **12.60.410 Warrants for level II traffic impact analysis.**

(1) The following is a list of specific conditions that may dictate the requirement for preparing a Level II TIA. The Traffic Engineer may require the preparation of a TIA if one or more of the following conditions are satisfied:

(a) The development is within the urban area as defined by the Urban Growth Management Boundary and is required by the city.

(b) The development will generate 50 or more AM or PM peak hour trips

within the rural areas as defined by the Urban Growth Management Act.

(c) The County has required that an Environmental Assessment or Environmental Impact Statement be prepared.

(d) A rezone of the subject property is being proposed.

(e) Current traffic or road system problems exist in the local area as identified by the County or a previous traffic study, such as a high-accident location, poor roadway alignment, or capacity deficiency.

(f) Adjacent neighborhoods or other areas that are perceived to be impacted.

(g) The current or projected level of service of the roadway system as a result of the proposed development is perceived to be significantly affected, or is expected to exceed County adopted level of service standards.

(h) The proposed development may potentially affect the implementation of street system improvements outlined in the Transportation Element of the comprehensive plan, the Transportation Improvement Program, or any other documented transportation project.

(i) At the time of environmental review, the original TIA is more than 2 years old or the proposed land use intensity increased by more than 10%.

(j) The proposed development is within an existing or proposed transportation benefit area. This may include Latecomer Agreements, Road Improvement Districts (RID), or local/state transportation improvement areas programmed for development reimbursements.

(k) The proposed development generates more than 25% of PM peak hour traffic through a signalized intersection or the “critical” movement at an unsignalized intersection. [Ord. 1183, 2003]

#### **12.60.420 Equivalent development units.**

The Institute of Transportation Engineers (ITE) Trip Generation Manual provides trip generation rates for a variety of land uses, consisting of average rates or fitted curve equations. Appropriate land use code or codes shall be utilized for the traffic study. A sample format to present common land uses and their equivalent development units is shown below in Table 1:

Table 1

LAND USE CODE (LU & Code#)	PM PEAK HOUR TRIPS		
	BASIC TRIP RATE	ENTER	EXIT
Single Family Detached Housing (LU 210)	1.01 per dwelling unit	64%	36%
Apartment (LU 220)	0.62 per dwelling unit	67%	33%
Industrial Park (LU 130)	0.92 per 1,000 sq ft gross floor area	21%	79%
Movie Theater with Matinee (LU 444)	44.53 per movie screen	52%	48%
Day Care Center (LU565)	13.20 per 1000 sq ft gross floor area	47%	53%
General Office Building (LU 710)	0.46 per employee	17%	83%
Shopping Center (LU 820)	3.74 per 1000 sq ft gross leasable area	48%	52%
Fast Food Restaurant with Drive-Through Window (LU 834)	0.94 per Seat	53%	47%
Drive-in Bank (LU 912)	54.77 per 1000 sq ft gross floor area	50%	50%

[Ord. 1183, 2003]

#### **12.60.430 Report certification.**

Traffic Impact Analyses (TIAs) shall be conducted under the direction of a

responsible individual or firm acceptable to the Traffic Engineer. The TIA shall be prepared by an engineer licensed to practice

in the State of Washington with special training and experience in traffic engineering and who is a member of the Institute of Transportation Engineers (ITE). The developer shall provide the Traffic Engineer the credentials of the individual(s) selected to perform the TIA. [Ord. 1183, 2003]

#### **12.60.440 Extent of study area.**

The study area shall include all site access drives, adjacent roadways, and major roadways and intersections in all directions from the site that are impacted by 50 or more inbound and outbound PM peak hour trips, or less as required by the County. Once the trip distribution for the proposed development has been approved by the Traffic Engineer, a formal “scoping” meeting may be conducted at the request of the project proponent and at the County’s discretion to clearly identify study area and contents expected in the TIA. [Ord. 1183, 2003]

#### **12.60.450 Impacts to other jurisdictions**

The County will cooperate with cities within the county and with WSDOT to expeditiously review the transportation impacts of developments within the respective jurisdictions. [Ord. 1183, 2003]

#### **12.60.460 Selection of horizon years.**

The horizon year shall be the anticipated build-out/full occupancy year for the development. Development with several stages of construction activity shall select a number of horizon years corresponding with the opening of each phase. [Ord. 1183, 2003]

#### **12.60.470 Scope of work.**

(1) The level of detail and scope of work of a TIA may vary with the size, complexity, and location of the proposed development. A TIA shall be a thorough review of the immediate and long-range

effects of the proposed development on the transportation system.

(a) Proposed Development Prospectus.

(i) Provide a reproducible copy of the site plan showing the type of development, street system, right-of-way limits, access points, and other features of significance in the proposed development. The site plan shall also include pertinent off-site information, such as locations of adjacent intersections, driveways, land use descriptions, street right-of-way limits with respect to the existing roadway and other features of significance.

(ii) Provide a vicinity map of the project area showing the transportation system to be impacted by the development.

(iii) Discuss specific development characteristics such as type of development proposed (single-family, retail, industrial, etc.), internal street network, proposed access locations, parking requirements, zoning, and other pertinent factors attributable to the proposed development.

(iv) Discuss project completion and occupancy schedule for the proposed development. Identify horizon years for traffic analysis purposes. [Ord. 1183, 2003]

(b) Existing Conditions.

(i) Discuss street characteristics including functional classification, number of travel lanes, lane width, shoulder treatment, bicycle path corridors and traffic control at study intersections. A “Figure” may be used to illustrate existing transportation facilities.

(ii) Identify safety and access problems including discussions on accident history, sight distance restrictions, roadway geometry deficiencies, traffic control, and pedestrian conflicts.

(iii) Obtain all available traffic data from Lewis County and cities within the County. If current or applicable data is unavailable, the individual or firm preparing the TIA shall collect the necessary data to

supplement the discussions and analysis in the TIA.

(iv) Conduct new manual peak hour turning movement counts at study intersections if traffic volume data is more than 2 years old at the time of environmental review or if required by the County.

(v) A “Figure” shall be prepared showing existing average daily traffic (ADT) and peak hour traffic volumes on the adjacent streets and intersections in the study area. Complete turning movement volumes shall be illustrated. This “Figure” shall represent the base line traffic volumes for analysis purposes.

(c) Development Traffic. This element of the TIA shall be conducted initially to identify the limits of the study area. The threshold requirement of development traffic exceeding 50 PM peak hour trips (two-hour average) shall apply. The individual or firm preparing the TIA shall submit to the Public Works Director a “Figure” illustrating the proposed “trip distribution” for the proposed development. The trip generation shall be included in a table form on the “Figure” with the peak hour traffic volumes assigned to the study area in accordance with the trip distribution.

(d) Future Traffic.

(i) Future Traffic Conditions Not Including Site Traffic:

(A) Future traffic volumes shall be estimated using information from transportation models or applying an annual growth rate to the base line traffic volumes. The future traffic volumes shall be representative of the horizon year for project development.

(B) In addition, proposed “on-line” pipeline development projects shall be taken into consideration when forecasting future traffic volumes. The increase in traffic from proposed pipeline projects shall be compared to the increase in traffic by applying the appropriate growth rate.

(ii) Future Traffic Conditions Including Site Traffic:

(A) The site-generated traffic shall be assigned to the street network in the study area based on the trip distribution model. The site traffic shall be combined with the forecasted traffic volumes to show the total traffic conditions estimated at development completion. A “Figure” will be required showing daily and peak period turning movement volumes for each traffic study intersection.

(e) Traffic Operations.

(i) The Level of Service (LOS) and capacity analysis shall be conducted for each pertinent intersection in the study area as determined by the Public Works Department. The methodology and procedures for conducting the capacity analysis shall follow the guidelines specified in the most recent edition of the Highway Capacity Manual. The individual or firm preparing the TIA shall calculate the intersection LOS for each of the following conditions:

(A) Existing PM peak hour traffic volumes (Figure required)

(B) Future PM peak hour traffic volumes not including site traffic (Figure required)

(C) PM peak hour traffic volumes for project completion horizon year, including site traffic (Figure required)

(D) Level of service results for each traffic volume scenario (Table required)

(ii) The Level of Service table shall include LOS results for PM peak periods. The table shall show LOS conditions with corresponding vehicle delays for signalized intersections.

(iii) The capacity analyses for existing signalized intersections shall include existing phasing, timing, splits and cycle lengths in the analysis as observed and measured during the peak hour traffic periods.

(iv) If the proposed development is scheduled to be completed in phases, the TIA shall conduct a LOS analysis for each separate development phase. The incremental increases in site traffic from each phase shall be included in the LOS analysis for each proceeding year of development completion. A "Figure" will be required for each horizon year of phased development.

(v) If the proposed development impacts a traffic signal coordination system currently in operation, the Traffic Engineer may require the TIA to include operational analysis of the system. Timing plans and proposed modifications to the coordination system may be required.

(vi) The capacity analysis shall be conducted using computer software. The individual or firm preparing the TIA shall use SIGNAL2000, or an approved equivalent, for capacity analysis of signalized intersections. The computer worksheets shall be submitted concurrently with the TIA document to the Public Works Department. For unsignalized intersections, the Highway Capacity Manual methodology shall be used. SIDRA software or an approved equivalent shall be used for analyzing modern roundabout intersections. A copy of the capacity analyses worksheets shall be submitted concurrently with the TIA document.

(f) Mitigation.

(i) The TIA shall include a proposed mitigation plan. The mitigation may be either the construction of necessary transportation system improvements and/or contributions to the County for the proposed development's fair share cost of identified future transportation improvements. Mitigation measures shall be required to the extent that the transportation facilities operate at or above the County's adopted Level of Service (LOS) standards.

(ii) The following guidelines shall be used to determine appropriate

mitigating measures of traffic impacts generated by proposed developments:

(A) On transportation facilities where there is a need to construct improvements by the horizon year of the proposed development, the cost for the mitigation will be entirely borne by the proposed development. However, in the event the Public Works Department and the Community Development Department identify more than one development under simultaneous review, cumulative impacts and distribution of mitigation costs may be considered

(B) On transportation facilities programmed for new improvements as part of a County project, the adverse traffic impacts of the proposed development will be considered mitigated by providing a proportionate share contribution of the costs for the proposed improvements. The proportionate share costs for the improvements shall be based on the percentage of proposed development traffic generated through the intersection. The percentage shall be based on the total projected peak hour volumes for the horizon year of the transportation study.

(C) On transportation facilities where the existing Level of Service is less than the adopted concurrency standard, and where no improvements are programmed to improve capacity and traffic operations, the proposed development shall mitigate the intersection to an acceptable Level of Service condition or wait until the improvements are implemented by the County, State, or other developments. Improvements made by the County prior to the development of the subject project shall be reimbursed by the proposed development based on a proportionate fair share cost of the facility improvements.

(D) Unsignalized intersections that currently operate at less than a Level of Service "D" condition shall be analyzed for traffic signal and intersection improvements. If two or more

traffic signal warrants are satisfied, signal and intersection improvements will be required as a mitigating measure for the proposed development. If at least 2 traffic signal warrants are not satisfied by the proposed development's horizon year, the TIA shall determine if traffic signal warrants and intersection improvements would be needed within a 5-year period after the proposed development's horizon year. The proposed development would be required to provide a proportionate share cost towards future traffic signal and intersection improvements if warranted with the 5-year period.

(I) However, if traffic signal warrants are not satisfied after a 5-year period from the proposed development's horizon year, mitigating impacts would not be required from the proposed development for traffic signal and intersection improvements.

(E) For signalized intersections in the County where the projected Level of Service condition is at "D" but where one or more of the Level of Service conditions on the approaches falls below Level of Service "D", mitigating measures may be required to improve the capacity and traffic operations at the intersection. The County reserves the right to review all adverse traffic impacts at these intersections and to determine appropriate mitigating measures. [Ord. 1183, 2003]

#### **12.60.480 Peak traffic hours.**

For traffic analysis, the PM peak hour conditions shall be used. The PM peak hour is defined as the average of the 60-minute period between 4:00 p.m. and 6:00 p.m. with the greatest sum of traffic volumes on a roadway segment or passing through the area of the project and the next highest hour adjacent to the peak commute hour. Reversed flow at intersections from morning to afternoon, and other unusual conditions, shall require analysis for both AM and PM

peak hour conditions, as required by the County. [Ord. 1183, 2003]

#### **12.60.490 Trip generation.**

(1) Site-generated traffic of proposed developments shall be estimated using the latest edition of the Trip Generation Manual as published by the Institute of Transportation Engineers (ITE). The land use code or codes appropriate for the development shall be used. Variations of trip rates will require the approval of the Traffic Engineer. Average trip rates as described in LCC 12.60.420, above, shall be used for all land-use categories where applicable. Trip rate equations will be allowed for those land uses without average rates.

(2) Site traffic shall be generated for daily and PM peak hour periods. For certain types of developments, the Traffic Engineer or his/her designee may also require site traffic estimates for the AM peak period.

(3) For multi-use and or phased projects, a trip generation table shall be prepared showing proposed land use, trip rates, and vehicle trips for daily and peak hour periods and appropriate traffic volume discounts if applicable. [Ord. 1183, 2003]

#### **12.60.500 Estimation of pass-by trips.**

Adjustments to trip generation made for "pass-by" or "mixed-use" traffic volumes shall follow the methodology outlined in the latest edition of the ITE Trip Generation Manual. [Ord. 1183, 2003]

#### **12.60.510 Traffic distribution.**

The directional distribution of traffic to and from the project shall be estimated using local traffic volume data provided by Lewis County, the cities within Lewis County, and the Washington State Department of Transportation Traffic Data Office. At the County's discretion, the Lewis County transportation model may be used for directional distribution estimates. [Ord. 1183, 2003]

#### **12.60.520 Minimum levels of service.**

The minimum level of service (LOS) for roads within Lewis County shall be as shown in the transportation element of the County's comprehensive plan. The level of service for state routes and major county roadways is calculated on a corridor basis. A corridor is defined as a transportation route, or portion of that route, that connects major land use designations. Logical termini, such as major intersection points, land use changes or land use barriers define the corridor boundaries. An affected corridor is defined as a road link or intersection on which a project may generate 50 new peak hour trips or turning movements. [Ord. 1183, 2003]

#### **12.60.530 GMA concurrency requirements.**

(1) The State Growth Management Act and Chapter 17.130 LCC require that a proposed development undergo a concurrency review and determination. Concurrency describes the situation in which road facilities are available when the impacts of development occur. For road facilities, this time period is statutorily established as within six years from the time of development. To satisfy concurrency:

(a) That part of the existing transportation system within the significant influence area of the development, functioning at the County's adopted minimum level of service, must have adequate capacity for the additional trips generated by the project at the time of preliminary plat or project approval, or

(b) The development must have, at the time of final project approval, a financial guarantee for transportation improvements required to achieve County adopted minimum levels of service with the additional trips generated by the project to be in place within six years of final project approval, or

(c) The applicant shall construct the transportation improvements required to

achieve County adopted minimum levels of service with the additional trips generated by the project to be in place at the time of final project approval.

(2) For purposes of evaluating concurrency on transportation facilities in Lewis County, corridor-wide levels of service are used, rather than single movement or intersection measures. An affected "corridor" will be defined as any road link or intersection on which a project may generate 50 new peak hour trips or turning movements. The corridor area ends when less than 10 of the new peak hour trips remain on the segment of roadway or if these trips extend beyond the logical termini of the corridor. Typically, the length of corridor in rural areas will not exceed 2-3 miles and up to 5 miles in urban environments. The length and termini of an "affected corridor" will be evaluated on a case-by-case basis as determined by the Traffic Engineer. The level of service deficiency shall be when the overall average for the entire corridor falls below LOS D. [Ord. 1183, 2003]

#### **12.60.540 Safety analysis.**

(1) Intersections and roadway segments within the influence area shall be evaluated to determine if the probability of accidents will increase with the addition of project traffic. Accident Record Research, Conflict Analysis, and potential for increased accidents shall be evaluated.

(a) Accident records for the current three-year period will be analyzed to determine whether patterns of accidents are forming within the influence zone and what alternative treatments should be considered to correct the problem. Examples of reoccurring accidents include:

(i) Right-angle collisions at an intersection.

(ii) Rear-end collisions at an intersection.

(iii) High frequency of vehicles leaving the roadway.

(b) Conflict Analysis is applicable to specific locations where accident data is not available or insufficient for analysis. This analysis is used to predict or measure accident potential at a location. A Conflict Analysis should determine the number of conflict points, frequency of conflicts and severity of conflicts based on expected traffic volumes and mix of traffic. Similar to the manner in which accidents are grouped by type of collision, traffic conflicts are arranged by type of maneuver. Examples of intersection conflicts are:

- (i) Cross traffic;
- (ii) Opposing left-turn cross traffic;
- (iii) Pedestrian.

A field study shall be completed and the results evaluated to identify the types of conflicts, roadway / intersection characteristics that contribute to the conflicts, and what alternative treatment should be considered to correct the problem.

(c) Horizontal and vertical geometry of applicable roadway segments shall be

reviewed for consistency with adopted standards and nationally recognized guidelines. Deficiencies for current use and horizon year use shall be identified. The general potential for increased accidents shall be evaluated in the context of projected traffic volume and roadway characteristics.

(i) Impacts to substandard roadway segments shall be evaluated as required by the County. [Ord. 1183, 2003]

#### **12.60.550 On-site planning and parking principles.**

The number of vehicle access points should be minimized by sharing driveways and linking parking lots between adjacent uses. Commercial developments shall provide coordinated internal circulation and connected parking facilities. Well-defined walkways must be designed into all parking lots, with interconnections between walkways to create safe walking conditions. [Ord. 1183, 2003]

Exhibit 3:

TRANSPORTATION IMPACT ANALYSIS  
LEVEL I STUDY REPORT FORMAT  
[Example 1]

- I. Introduction and Summary
  - 1. Report Certification
  - 2. Purpose of Report and Study Objectives
- II. Proposed Development
  - 1. Description
  - 2. Location and Vicinity Map
  - 3. Site Plan
  - 4. Proposed Zoning (if rezone proposed)
  - 5. Proposed Land Use and Intensity
  - 6. Phasing and Timing of the Project
- III. Existing Conditions
  - 1. Study Area
    - a) Limits of traffic study
    - b) Existing zoning
    - c) Existing land uses
  - 2. Site Accessibility
    - a) Area roadway system
    - b) Transit service
    - c) Pedestrian and Bicycle Facilities
- IV. Trip Generation and Distribution
  - 1. Trip Generation
  - 2. Trip Distribution
- V. Appendices
  - 1. Trip Generation Calculations
  - 2. Passer-by and Origin-Destination Studies
  - 3. References

TRANSPORTATION IMPACT ANALYSIS  
LEVEL II STUDY REPORT FORMAT  
[Example 2]

- I. Introduction
  - 1. Report Certification
  - 2. Project Overview
    - a) site vicinity map
  - 3. Study Context
- II. Project Description
  - 1. Development proposal
    - a) Site plan
    - b) Proposed zoning (if rezone proposed)
    - c) Proposed land use and intensity
    - d) Phasing and timing of project

- III. Background Information/Existing Conditions
  - 1. Study Area
    - a) Limits of traffic study
    - b) Existing zoning
    - c) Existing Land Uses
  - 2. Roadway Inventory
  - 3. Traffic Volume Data
    - a) Figure illustrating existing PM peak hour traffic volumes
  - 4. Public Transportation
  - 5. Pedestrian and Bicycle Facilities
- IV. Traffic Generation and Distribution
  - 1. Traffic Generation
  - 2. Traffic Distribution
    - a) Figure illustrating project traffic on roadway network
- V. Future Traffic Conditions
  - 1. Roadway Improvements
  - 2. Pipeline Development Projects
    - a) Figure showing pipeline projects traffic volumes at study intersections
  - 3. Future Traffic Volumes
    - a) Figure illustrating projected traffic without project
    - b) Figure illustrating projected traffic with full project
- VI. Traffic Operations Analysis (Existing & Future)
  - 1. Capacity Analysis
  - 2. Signalized Intersections
  - 3. Unsignalized Intersections
  - 4. Project Driveways
- VII. Safety Analysis
  - 1. Accident Analysis
  - 2. Conflict Analysis
  - 3. Horizontal and Vertical Geometric Review
- VIII. Mitigation
- IX. Appendices
  - 1. Trip generation calculations
  - 2. Turning Movement Count worksheets
  - 3. Passer-by and origin-destination studies
  - 4. Pipeline traffic volumes worksheets
  - 5. Capacity analysis worksheets

[Ord. 1183, 2003]

**V. SUBDIVISION  
AND UTILITY STANDARDS**  
**12.60.560 Development and subdivision  
standards.**

(1) Every subdivision shall conform with design standards as provided in LCC Chapter 16.05, Article VI.

(2) Access spacing requirements shall be as outlined in LCC 12.60.630 of the Road Development Standards.

(3) Private roads shall be allowed within a subdivision when the criteria in LCC 12.60.260 of these Standards are met.

(4) Gated access may be permitted if all criteria in LCC 12.60.650 of these Standards are met.

**12.60.570 Utility standards.**

(1) All utility installations shall comply with standards as provided in LCC Chapter 12.20, "Utility Installations within Road Rights-of-Way".

(a) Permits.

(i) No person, firm, partnership, association, joint venture, corporation or other public or private legal entity shall construct, adjust, repair or relocate any utility line or construct any new roadway feature in Lewis County right of way without first obtaining a permit from the Lewis County Department of Public Works. Permitted work shall comply with these Standards and with utility franchise agreements when applicable.

(ii) A permit is not required for routine maintenance activities or repairs to aboveground utilities. \*[See Note, below.]

(iii) The utility contractor is required to be a licensed and insured contractor in the State of Washington.

(b) Financial Security. Prior to beginning any work, financial security may be required in accordance with LCC 12.20.080.

(c) Location of Utilities.

(i) Placement of utilities on existing roadways shall be determined on an individual basis as approved by the County Engineer.

(ii) Utility installations shall be located to minimize the need for later adjustment, to accommodate future roadway improvements, and to provide service access to such installations with minimum interference to roadway traffic. If the County determines that a proposed utility location interferes with a future project, the utility will be required to locate elsewhere. The County will aid the applicant in determining the new location.

(d) Relocation or Removal of Existing Utilities. Existing utilities within the rights-of-way shall be temporarily or permanently removed, relocated, changed or altered following notice from the County when road work funded by the County would disturb the existing underground utility. All such removal or relocation shall be at the sole expense of the owning utility and all work must be accomplished by the same permitting process as for new installations.

(e) Utility Installation.

(i) Installation of all utilities shall be in compliance with LCC Chapter 12.20.230 Underground Facilities, 12.20.240 Overhead Facilities, and 12.20.250 Fiber Optic Systems, and all other applicable federal and state regulations, including health and safety standards.

(ii) All construction within the traveled way or having an impact on traffic shall provide a Traffic Control Plan as specified in the latest edition of the MUTCD.

(f) Restoration. Restoration shall comply with LCC 12.20.320 and LCC 12.20.330. For roadway cut restoration, refer to Standard Detail 5-1 at the end of this Chapter.

(g) Utility Easements. The location, width, and description of all utility easements shall appear on final plat maps. [Ord. 1183, 2003]

\*[Codifier's Note: pursuant to LCC 12.20.040 & 12.20.310, only unexpected and emergency repairs are conditionally exempt from permit].

## 12.60.580 List of drawings.

### SECTION V – SUBDIVISION AND UTILITY STANDARDS

Title	Drawing
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Standard Trench and Pavement Restoration .....5-1 (Drawings below) [Ord. 1183, 2003]	
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## VI. ACCESS

### 12.60.590 General.

(1) A Road Approach Permit shall be obtained from Lewis County prior to accessing any County roadway.

(2) Access to State Highways is regulated by the Washington State Department of Transportation. The property owner desiring access to a state highway is responsible for coordinating with WSDOT for satisfactory completion of any requirements prior to construction.

(3) Secondary access for emergency vehicles may be required for certain high volume or public safety sensitive developments.

(4) No relocation, alteration or reconstruction of existing access points shall be permitted without prior written approval from the County Engineer.

(5) Standards in this section apply to both roads and driveways; both are access points. [Ord. 1183, 2003]

### 12.60.600 Functional classification and connectivity.

Roadway hierarchy based on functional classification provides a network of streets based on distinct travel movements and the service they provide. Roadway layout shall be based primarily on the safety, efficiency of traffic flow, and functional use of the roadway. Roadways are divided into arterials, collectors, local access roads, and

very low volume public or private access roads. [Ord. 1183, 2003]

### 12.60.610 Road approach permits.

(1) Road Approach Permits shall be approved by the County Engineer. The applicant may be required to provide the information necessary to make a determination of approval, including:

(a) Existing and projected traffic volumes, accident history, and other operational considerations.

(b) Existing and projected state, local and regional planning organization transportation plans and needs, including considerations of new or improved facilities.

(c) Drainage requirements.

(d) The physical features of lands adjoining the roadway, including available sight distance.

(2) Road Approaches must meet the following conditions:

(a) Approaches must meet all legal and safety standards.

(b) The applicant shall place and maintain all appropriate warning signs, barricades, and warning lights as needed for safety of the public.

(c) All road surfaces, slopes, ditches, pipes, landscaping, etc. disturbed or damaged by the operation shall be restored to original or better condition within five days.

(d) Trenches shall be backfilled as soon as possible behind laying of pipe.

(e) No mud, dirt or debris shall be allowed on the County right-of-way. The applicant is responsible for cleanup.

(f) The applicant is responsible for locating underground utilities.

(g) Lewis County will maintain cross culverts for water conveyance. However, the property owner shall repair or replace as needed.

(h) Access will not be considered as legal until final inspection and approval. The Road Approach Permit may be revoked for non-compliance.

(i) A copy of the Road Approach Permit is to be maintained on site while the work is being performed. [Ord. 1183, 2003]

#### **12.60.620 Subdivision/commercial access.**

(1) For access proposed as part of subdivision or commercial development, the County Engineer may require a review under Traffic Impact Analysis guidelines.

(2) For subdivisions of 20 units or more, at least two ingress-egress routes may be required by the County fire marshal or fire protection agency. A secondary access is required for developments where the ADT is greater than 1000. [Ord. 1183, 2003]

#### **12.60.630 Access spacing.**

(1) Minimum access spacing provides drivers with sufficient perception-reaction time to address one potential conflict area at a time. Existing accesses on both sides of the roadway should be analyzed to determine proper location for a new access. Spacing is important to the safety and capacity of a roadway. Current AASHTO guidelines shall be used to determine access spacing.

(2) Corner Clearance. Corner clearance is the distance between a private access and the nearest cross road intersection and is applicable to all roadway classifications. Driveways shall be located as far from the intersection as possible or as defined by AASHTO guidelines.

#### **12.60.640 Left turn, acceleration and deceleration lanes.**

The need for left turn, acceleration and deceleration lanes in conjunction with development proposals shall be determined based on the criteria in AASHTO and the WSDOT Design Manual. Evaluation by the County Engineer may require submittal of traffic data by the Applicant/Developer under the TIA guidelines. [Ord. 1183, 2003]

#### **12.60.650 Gates.**

(1) Gates are not allowed on County roadways.

(2) A building permit issued by the County is required when gates are installed over private driveways or shared access facilities. In order for the County to issue the building permit, the following requirements must be met:

(a) Locked gates shall have rapid-entry capabilities compatible with the local fire district requirements per the Uniform Fire Code.

(b) All electrically-activated gates will have default capabilities to the unlocked position.

(c) The minimum clear width of a gate shall be 20 feet.

(d) Gates that might be obstructed by the accumulation of snow shall not be installed.

(e) Gate posts, keypads, and other gate appurtenances shall not be located within the 20-foot wide clear width area.

(f) A vehicular turn-around sufficient to allow a vehicle to maneuver shall be provided in front of the gate.

(g) Gated access to commercial, residential or industrial projects require a Traffic Review to determine an appropriate stacking distance. The stacking distance shall be based on vehicle length, access street classification, and entering volumes in the PM peak hour.

(3) A gate shall be treated as a dead end road. A cul-de-sac may be required to allow

for adequate turnaround before the gate.  
[Ord. 1183, 2003]

## **VII. ROADSIDE FEATURES**

### **12.60.660 Side slopes.**

Side slopes shall be stabilized by grass sod or seeding, or by other planting or surfacing material acceptable to the County Engineer. [Ord. 1183, 2003]

### **12.60.670 Survey monuments.**

(1) Refer to Standard Detail 7-1 at the end of this Chapter for Recommended Survey Monument Standard and Standard Detail 7-2 for Monument Case Installation.

(a) All existing survey control monuments that are disturbed, lost, or destroyed during surveying or construction shall be referenced prior to construction and replaced or raised after construction by a Professional Land Surveyor (PLS) licensed in the State of Washington.

(b) Permanent control monuments shall be established per LCC 16.05.250.

(c) Plat Surveys. Permanent control monuments shall be established at all angle points of the boundaries of a subdivision, the intersections of the centerline of all roads within the subdivision, and the beginnings and ends of all curves on centerline. A signed and sealed statement from a registered land surveyor that all monuments have been set and lot corners staked as shown on the plat shall be required prior to final plat approval.

(d) Road Surveys.

(i) Survey monuments shall be placed in County roads at:

- (A) Points of curvature (PC).
- (B) Points of tangent (PT).
- (C) Intersections.
- (D) Centers of cul-de-sacs.
- (E) As needed for inter-

visibility.

(F) As required by the County.

(ii) Monuments at the PC and PT of the curve may be eliminated and

replaced with a monument at the point of intersection, if the point of intersection falls within the paved roadway surface.

(e) Records. A legal survey conforming to Chapter 58.09 RCW (Survey Recording Act) shall be filed with the County Auditor and the County Engineer showing methods used to establish the monument's position with references tying the monument's location. Formal recorded documents, containing the registered surveyor's certification, monumentation and staking, shall be placed by the registered surveyor in accordance with the certificate and the Survey Recording Act. [Ord. 1183, 2003]

### **12.60.680 Mailboxes.**

(1) Mailboxes shall be set in accordance with the LAG manual, and as follows:

(a) U.S. Postal Service approval of location, type and design shall be required. Any details provided by the U.S. Postal Service must be included in the plan set.

(b) Mailbox supports shall be of breakaway design.

(c) Mailbox clusters shall conform to WSDOT Standard Plan H-12. [Ord. 1183, 2003]

### **12.60.690 Landscaping.**

(1) All landscaping within County right-of-way shall require approval of the County Engineer.

(2) Landscaping shall be of the type and placement to achieve and maintain the sight distance requirements in LCC 12.60.260.

(3) No landscaping shall be allowed within a drainage ditch or drainage swales. [Ord. 1183, 2003]

### **12.60.700 Road illumination.**

(1) All requests for street lighting shall be submitted in writing to the Public Works Director. The designer shall submit a letter to the Department of Public Works certifying that the design is in conformance with the "American National Standard

Practice for Roadway Lighting” developed by the Illuminating Engineering Society and approved by the American National Standards Institute. Written acceptance of illumination designs and locations by the Department of Public Works shall be required prior to installation.

(2) The Public Works Director shall base his determinations of illumination installation or maintenance acceptance upon engineering and traffic safety considerations provided by the County Engineer and Traffic Engineer, subject to the availability of funds and priorities set forth in the Six-Year Transportation Improvement Plan, Annual Construction Program, and adopted Road Fund budget.

(3) Lewis County may allow installation of roadway lighting that meets the above criteria if the party wanting it agrees to pay for it pursuant to RCW 36.82.110.

(3) Refer to the current Lewis County Roadway Illumination policy, on file with the Department of Public Works. [Ord. 1183, 2003]

#### **12.60.710 Roadway barricades.**

Temporary and permanent barricades shall conform to the standards described in the latest version of the Manual on Uniform Traffic Control Devices (MUTCD). [Ord. 1183, 2003]

#### **12.60.720 Bollards.**

(1) When necessary to deny motor vehicle access to an easement, tract, or trail, except for maintenance or emergency vehicles, the point of access shall be closed by a line of bollards.

(2) No emergency access roads shall be blocked in this manner without the approval of the County Fire Marshall or local Fire District Chief. [Ord. 1183, 2003]

#### **12.60.730 Guard rails.**

For purposes of design and location, all guard rails along roadways shall conform to WSDOT Standard Plans, WSDOT Design Manual and LAG Manual. [Ord. 1183, 2003]

#### **12.60.740 Road name signs.**

(1) County Road Name Signs. The Department of Public Works shall furnish, install and maintain the necessary signs. Road name signs shall be installed in accordance with MUTCD Standards.

(2) Private Road Signs. Private road name signs shall be installed by the County where they intersect County roads. The Applicant is responsible for the initial cost of the sign; however, the County will maintain and replace private road signs.

(3) Any sign constructed in County right-of-way in non-conformance with these standards may be removed by the County. [Ord. 1183, 2003]

#### **12.60.750 Traffic control devices.**

Traffic control devices shall be installed in accordance with the MUTCD. [Ord. 1183, 2003]

#### **12.60.760 Retaining walls.**

Retaining walls within a public right-of-way are reviewed by the County Engineer. Retaining walls shall be designed, signed, and stamped by a registered engineer licensed in the State of Washington, and shall be submitted by the applicant for approval by the County Engineer. A soils investigation and report by a geotechnical engineer may be required by the County if soils conditions are questionable. [Ord. 1183, 2003]

## **12.60.770 List of drawings.**

### **SECTION VII – ROADSIDE FEATURES**

<b>Title</b>	<b>Drawing</b>
Recommended Survey Monument.....	7-1
Monument Case Installation.....	7-2
(Drawings below) [Ord. 1183, 2003]	

## **VIII. STORM DRAINAGE**

### **12.60.780 General.**

All stormwater management elements of the roadway within the project boundaries shall be designed in accordance with the requirements of Chapter 15.45 LCC, Stormwater Management. [Ord. 1183, 2003]

### **12.60.790 Catch basins, manholes, inlets and culverts.**

(1) Vaned grates shall be utilized on grades in excess of 10%.

(2) Surface drainage from driveways must be provided by the applicant unless otherwise stated in the Road Approach permit. In no case shall the size of the pipe be smaller than 12 inches in diameter. [Ord. 1183, 2003]

## **IX. CONSTRUCTION CONTROL AND INSPECTION**

### **12.60.800 Basis for control of work.**

(1) Work performed for the construction or improvement of public or private roads for subdivisions, whether by or for a private applicant, by County staff, or by a County contractor, shall be done to the satisfaction of the County and in accordance with the approved plans. No work shall be started until such plans are approved by the County Engineer. Any revision to plans shall be approved by the County before being implemented. Failure to receive the County's approval can result in removal or modification of construction at the contractor's or applicant's expense to bring it into conformance with approved plans.

(2) It is the responsibility of the applicant, contractor and their agents to have an approved set of plans and any necessary permits on the job site wherever work is being accomplished.

(3) The County shall have the authority to enforce these Standards as well as other referenced or pertinent specifications. The County will appoint project engineers, assistants and inspectors as necessary to inspect the work, and they will exercise such authority as the County Engineer may delegate.

(4) It is the responsibility of the applicant, contractor, or their agents to notify the County in advance of beginning work on any project. A pre-construction meeting and/or field review shall be required before the commencement of work.

(5) Failure to comply with the provisions of these Standards may result in stop work orders, removal of work accomplished, or other penalties as established by law. [Ord. 1183, 2003]

### **12.60.810 Engineer certification.**

The County may require the applicant to obtain certification from the Project Engineer to document and certify an inspection at any time during the construction process. [Ord. 1183, 2003]

### **12.60.820 Inspection criteria.**

(1) On all road construction on public or private roads for subdivisions or commercial development, inspections shall be done under the control of the County Engineer or his/her designee.

(2) All specific inspections, test measurements or actions required of all work and materials are set forth in their respective chapters herein. Tests shall be performed at the developer's or contractor's expense. [Ord. 1183, 2003]

#### **12.60.830 Notification requirements.**

(1) The County shall be notified 72 hours before construction is started. Other jurisdictions, Project Engineer, utility companies, subcontractors and other necessary parties to the project shall be present at the pre-construction conference. The utility one-call notification system shall be utilized in a timely fashion.

(2) The applicant shall notify the County's Public Works Department at least 24 hours in advance of each required inspection. Failure to comply with inspection requirements shall necessitate appropriate testing and certification as directed by the County Engineer. [Ord. 1183, 2003]

#### **12.60.840 Required inspections to be performed by the applicant.**

When it is determined by the County Engineer that work being performed requires special inspection, the applicant performing the work shall be required to furnish a qualified special inspector(s). All inspection work performed shall be coordinated with the County Engineer. [Ord. 1183, 2003]

#### **12.60.850 Materials sampling and testing.**

Materials sampling and testing shall be by the applicant at a frequency and magnitude to be determined by the County Engineer. Test reports by a state-certified testing laboratory shall be furnished for all tests performed by private testing laboratories. [Ord. 1183, 2003]

## **X. URBAN FEATURES**

### **12.60.860 General.**

(1) All roadway construction and improvement within city or town limits or urban growth areas (UGA) shall comply with the requirements of the city or town standards as adopted in Chapter 17.15 LCC. For cities that do not have adopted road standards and for County UGAs not attached to cities, the County standards shall apply. In addition to all other roadway requirements, the urban features in this Chapter shall apply.\*

(2) All roadway construction within an Area of More Intense Development (LAMIRD), as defined in RCW 36.70A.070 shall be as set forth in Section III and LCC 12.60.230 et seq., of these Standards plus urban features described in this section. [Ord. 1183, 2003]

\*[Codifier's Note: see also, UGA road standards provisions/limitations in LCC 12.60.240 (a) & (b).]

### **12.60.870 Design standards.**

Plans for the construction of sidewalks, curb and gutters shall be submitted as part of the plans when applicable. [Ord. 1183, 2003]

### **12.60.880 Sidewalks, curb and gutter.**

(1) Rural Area Urban Style Access Roads. Sidewalks, curb and gutter may be required on both sides of all roads interior to the development, including cul-de-sacs.

(2) Sidewalks.

(a) The design and construction of all sidewalks shall meet the Standards set forth in Standard Detail 10-1 at the end of this Chapter.

(b) Form and subgrade inspection by the County is required before the sidewalk is poured.

(3) Curb and Gutter.

(a) Cement concrete curb and gutter shall be used for all road edges unless otherwise approved by the County Engineer.

(b) The design and construction of curb and gutter shall meet the Standards set forth in Standard Detail 10-2.

(c) Form and subgrade inspection by the County is required before the curb and gutter is poured.

(d) Monolithic pour of curb and sidewalk will not be allowed. [Ord. 1183, 2003]

#### **12.60.890 Curb access ramps.**

(1) All sidewalks must be constructed of barrier free design consistent with the Americans with Disabilities Act. Ramps shall be constructed to the current WSDOT standard or acceptable alternate.

(2) Curb access ramps shall be constructed of Portland Cement Concrete. Form and subgrade inspection by the County is required before the handicap ramp is poured. [Ord. 1183, 2003]

#### **12.60.900 Staking.**

All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work

shall be licensed as a Professional Engineer or Professional Land Surveyor by the State of Washington. [Ord. 1183, 2003]

#### **12.60.910 Testing.**

(1) Testing may be required at the applicant's or contractor's expense on all materials and construction as specified in the Standard Specifications. At a minimum, one slump test and 2 test cylinders may be taken once per day.

(2) The County shall be notified before each phase of sidewalk and curb construction commences. [Ord. 1183, 2003]

#### **12.60.920 Bikeways.**

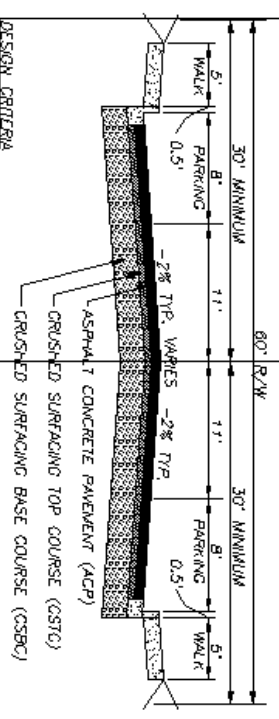
(1) Bikeways may be allowed when the traffic analysis indicates substantial bicycle usage which would benefit from a designated bicycle facility as determined by the Traffic Engineer.

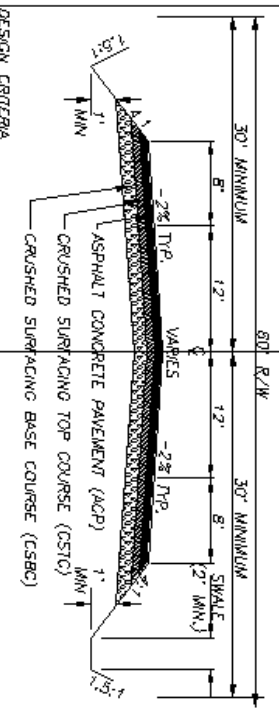
(2) The minimum design Standards for bikeways shall be as defined in the "WSDOT Design Manual", Facilities for Non-motorized Transportation. [Ord. 1183, 2003]

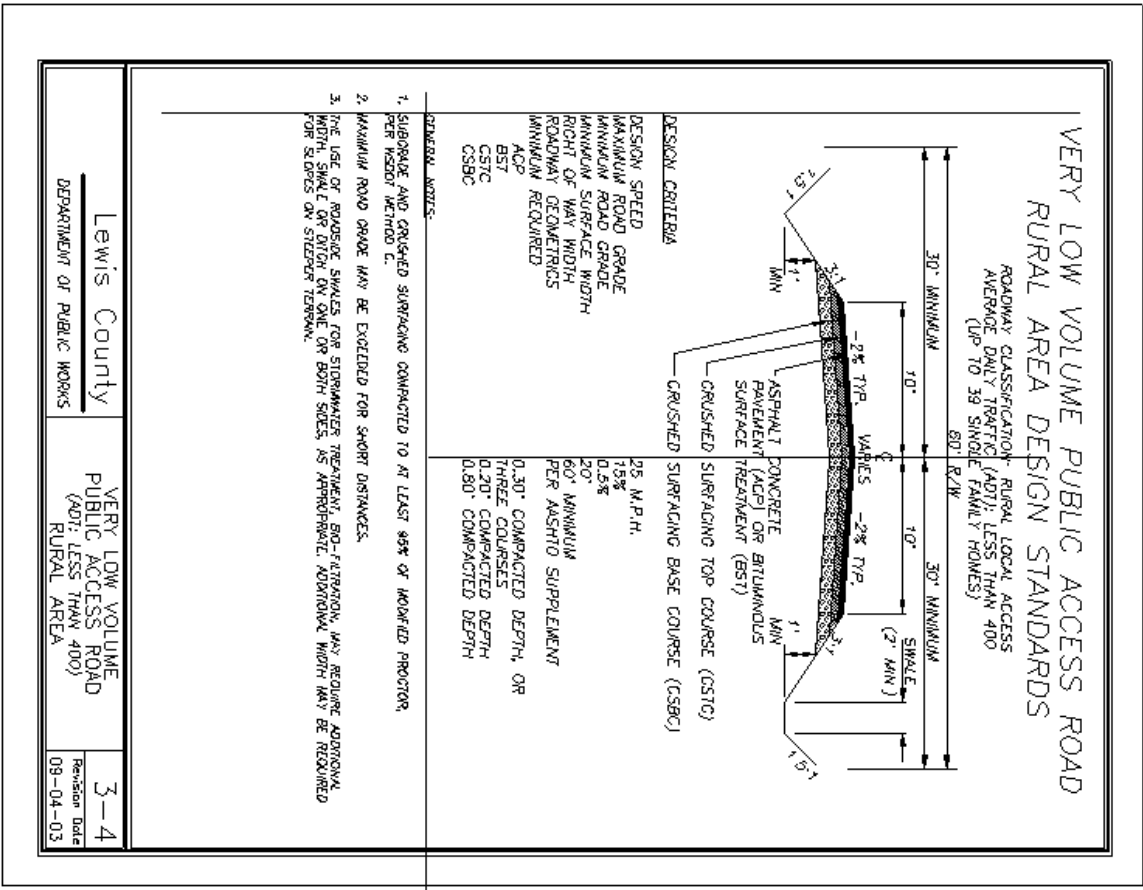
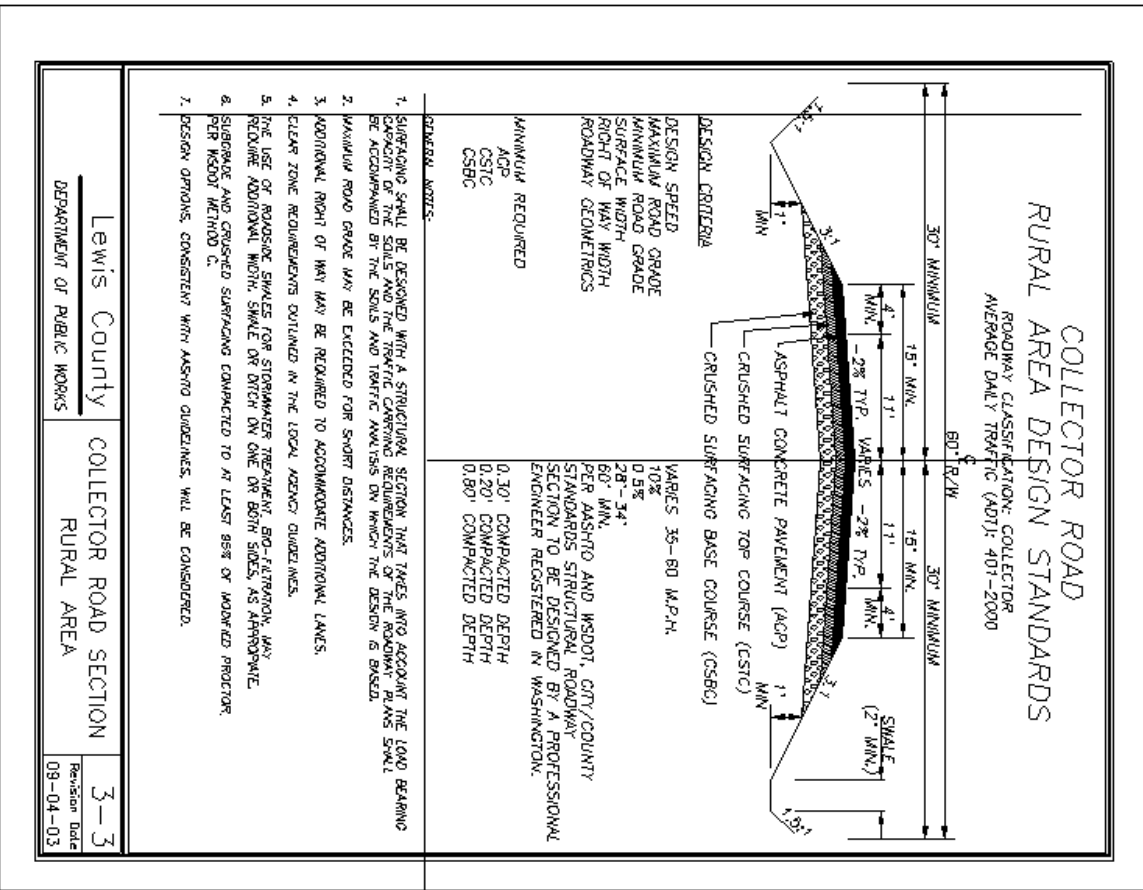
#### **12.60.930 List of drawings.**

### **SECTION X – URBAN FEATURES**

<b>Title</b>	<b>Drawing</b>
Sidewalk .....	10-1
Cement Concrete Curb and Gutter.....	10-2
(Drawings below) [Ord. 1183, 2003]	

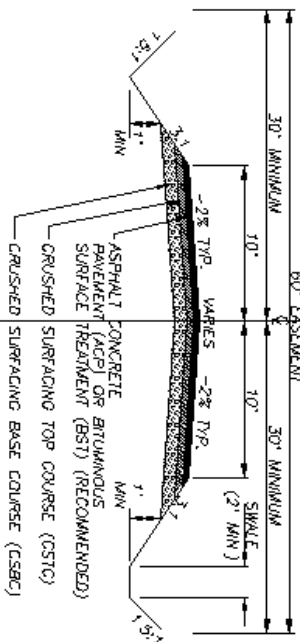
URBAN STYLE ROAD		
RURAL AREA DESIGN STANDARDS		
ROADWAY CLASSIFICATION: NEIGHBORHOOD COLLECTORS AND LOCAL ACCESS STREETS AVERAGE DAILY TRAFFIC (ADT): 2000 AND BELOW		
		
<b>DESIGN CRITERIA</b> DESIGN SPEED MAXIMUM ROAD GRADE MINIMUM ROAD GRADE MINIMUM ROAD WIDTH MINIMUM SURFACE WIDTH RIGHT OF WAY WIDTH ROADWAY GEOMETRICS STANDARD STRUCTURAL ROADWAY SECTION TO BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN WASHINGTON. ACP CSTC CSBC		
<b>DESIGN CRITERIA</b> VARIES 30-60 M.P.H. 15% 0.5% PER AASHTO 60' MINIMUM PER AASHTO AND WSDOT, CITY/COUNTY STANDARDS STANDARD STRUCTURAL ROADWAY SECTION TO BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN WASHINGTON. 4" ACP 4" CSTC 8" CSBC		
<b>GENERAL NOTES:</b> 1. SURFACING DETAIL SHOWN ARE MINIMUM SURFACING SHALL BE DESIGNED WITH A STRUCTURAL SECTION THAT TAKES INTO ACCOUNT THE LOAD BEARING CAPACITY OF THE SOILS AND THE TRAFFIC CHARACTERISTICS OF THE ROADWAY. PLANS SHALL BE ACCOMPANIED BY THE SOILS AND TRAFFIC ANALYSIS ON WHICH THE DESIGN IS BASED. 2. WHEN ON STREET PARKING IS ALLOWED ON ONE SIDE, MINIMUM CURB TO CURB WIDTH SHALL BE 30'. 3. THE USE OF ROADSIDE SWALES FOR STORMWATER TREATMENT, BIO-FILTRATION, MAY REQUIRE ADDITIONAL WIDTH. 4. DESIGN SPEEDS IN EXCESS OF 35 MPH REQUIRES EXTRA 5% DISTANCE FOR PEDESTRIAN SEPARATION. 5. SUBGRADE AND CRUSHED SURFACING COMPACTED TO AT LEAST 95% OF MODIFIED PROCTOR, PER WSDOT METHOD C. 6. PARKING MAY BE REQUIRED ON ONE OR BOTH SIDES. 7. DRAINAGE/CATCH BASINS SHALL BE DESIGNED PER WSDOT STANDARDS.		
Lewis County	URBAN STYLE ROAD	3-1
DEPARTMENT OF PUBLIC WORKS	SECTION RURAL AREA	Revision Date 09-04-03

ARTERIAL		
RURAL AREA DESIGN STANDARDS		
ROADWAY CLASSIFICATION: ARTERIAL AVERAGE DAILY TRAFFIC (ADT): ABOVE 2000		
		
<b>DESIGN CRITERIA</b> DESIGN SPEED MAXIMUM ROAD GRADE MINIMUM ROAD GRADE MINIMUM ROAD WIDTH MINIMUM SURFACE WIDTH RIGHT OF WAY WIDTH ROADWAY GEOMETRICS STANDARD STRUCTURAL ROADWAY SECTION TO BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN WASHINGTON. ACP CSTC CSBC		
<b>DESIGN CRITERIA</b> VARIES 40-60 M.P.H. 10% 0.5% 40' 60' MIN. PER AASHTO AND WSDOT, CITY/COUNTY STANDARDS STANDARD STRUCTURAL ROADWAY SECTION TO BE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN WASHINGTON. 4" ACP 4" CSTC 8" CSBC		
<b>GENERAL NOTES:</b> 1. SURFACING SHALL BE DESIGNED WITH A STRUCTURAL SECTION THAT TAKES INTO ACCOUNT THE LOAD BEARING CAPACITY OF THE SOILS AND THE TRAFFIC CHARACTERISTICS OF THE ROADWAY. PLANS SHALL BE ACCOMPANIED BY THE SOILS AND TRAFFIC ANALYSIS ON WHICH THE DESIGN IS BASED. 2. FULL DEPTH PAVED SHOULDERS SHALL BE REQUIRED. 3. ADDITIONAL RIGHT OF WAY MAY BE REQUIRED TO ACCOMMODATE ADDITIONAL LANES. 4. CLEAR ZONE REQUIREMENTS OUTLINED IN THE LOCAL AGENCY ORDINANCES. 5. THE USE OF ROADSIDE SWALES FOR STORMWATER TREATMENT, BIO-FILTRATION, MAY REQUIRE ADDITIONAL WIDTH, SWALE OR DITCH ON ONE OR BOTH SIDES, AS APPROPRIATE. 6. SUBGRADE AND CRUSHED SURFACING COMPACTED TO AT LEAST 95% OF MODIFIED PROCTOR, PER WSDOT METHOD C.		
Lewis County	ARTERIAL ROAD SECTION	3-2
DEPARTMENT OF PUBLIC WORKS	RURAL AREA	Revision Date 09-04-03



# VERY LOW VOLUME PRIVATE ACCESS ROAD RURAL AREA DESIGN STANDARDS

ROADWAY CLASSIFICATION: PRIVATE ROAD  
AVERAGE DAILY TRAFFIC (ADT): 100 - 400  
(11 TO 39 SINGLE FAMILY RESIDENCES)



## DESIGN CRITERIA

DESIGN SPEED	PER AASHTO SUPPLEMENT
MAXIMUM ROAD GRADE	15%
MINIMUM ROAD GRADE	0.5%
MINIMUM SURFACE WIDTH	20'
EASEMENT WIDTH	60' MINIMUM
ROADWAY GEOMETRICS	PER AASHTO SUPPLEMENT
MINIMUM REQUIRED	0.20' COMPACTED DEPTH
CS1C	0.80' COMPACTED DEPTH
CS2C	0.30' COMPACTED DEPTH, OR
ACP (RECOMMENDED)	THREE COURSES
BST (RECOMMENDED)	

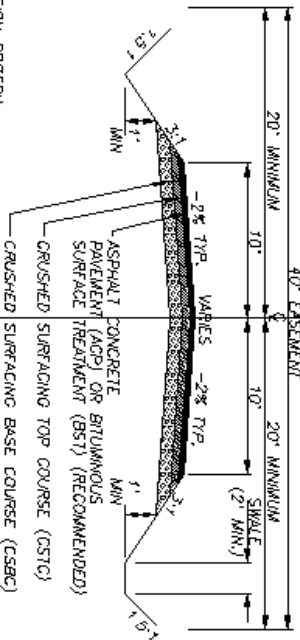
## GENERAL NOTES:

1. THE USE OF ROADSIDE SWALES FOR STORMWATER TREATMENT, BIO-FILTRATION, MAY REQUIRE ADDITIONAL WIDTH, SHALE OR DITCH ON ONE OR BOTH SIDES, AS APPROPRIATE.
2. SUBGRADE AND CRUSHED SURFACING COMPACTED TO AT LEAST 85% OF MODIFIED PROCTOR, PER METHOD C.

Lewis County	VERY LOW VOLUME	3-5
DEPARTMENT OF PUBLIC WORKS	PRIVATE ACCESS ROAD SECTION (ADT: 100-400) RURAL AREA	Revision Date 09-04-03

# VERY LOW VOLUME PRIVATE ACCESS ROAD RURAL AREA DESIGN STANDARDS

ROADWAY CLASSIFICATION: PRIVATE ROAD  
AVERAGE DAILY TRAFFIC (ADT): LESS THAN 100  
(UP TO 10 SINGLE FAMILY RESIDENCES)



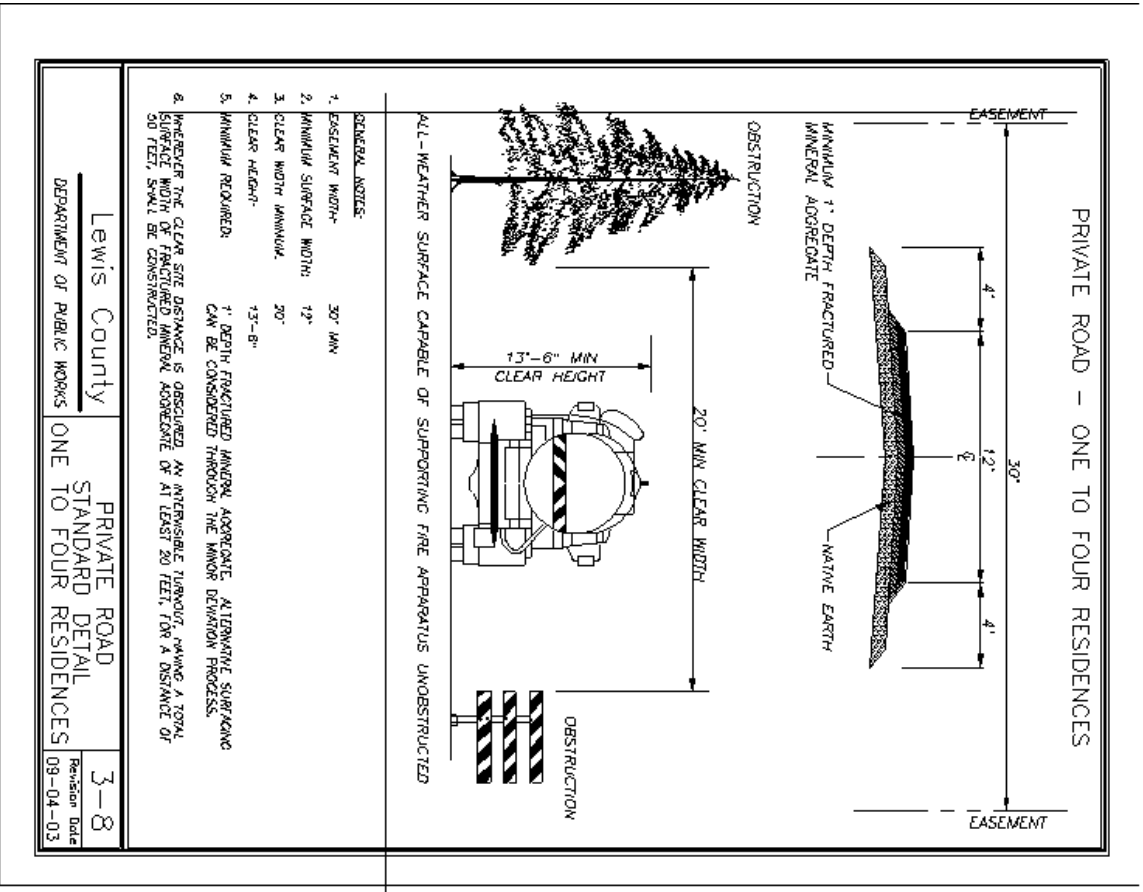
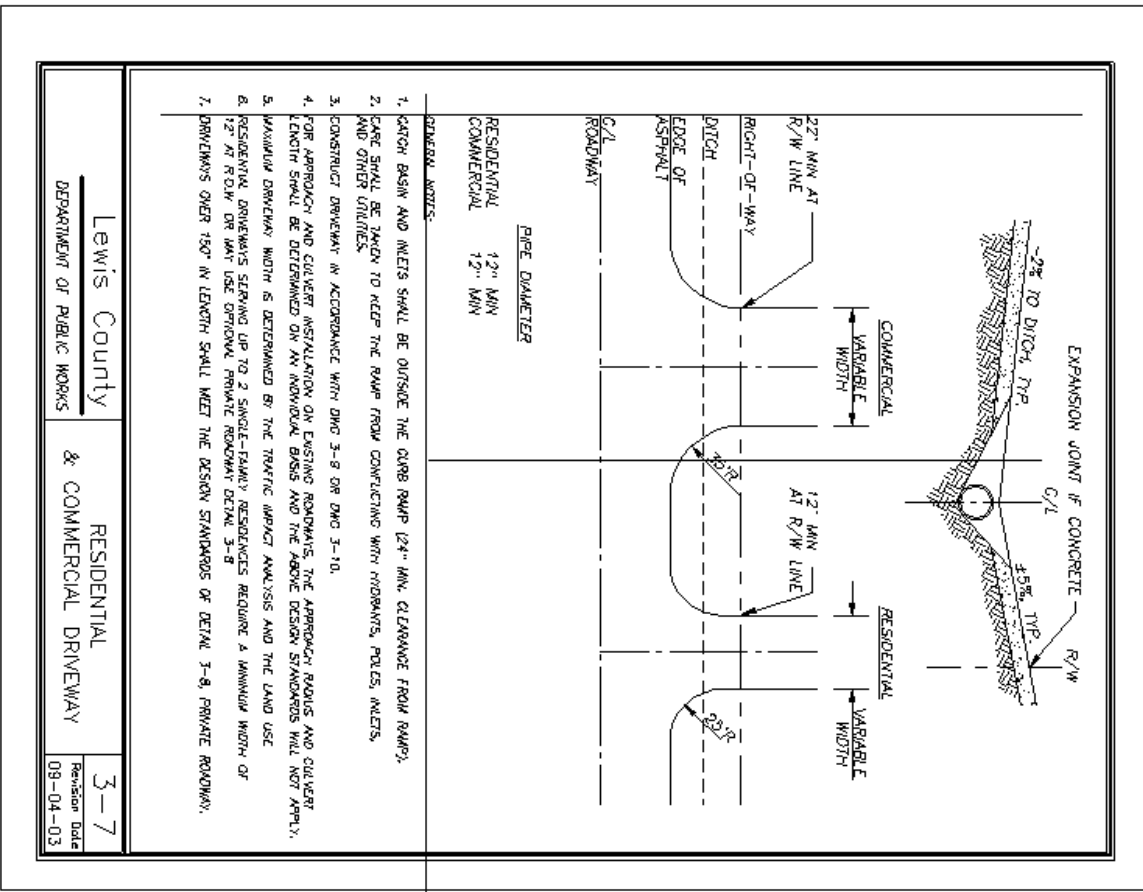
## DESIGN CRITERIA

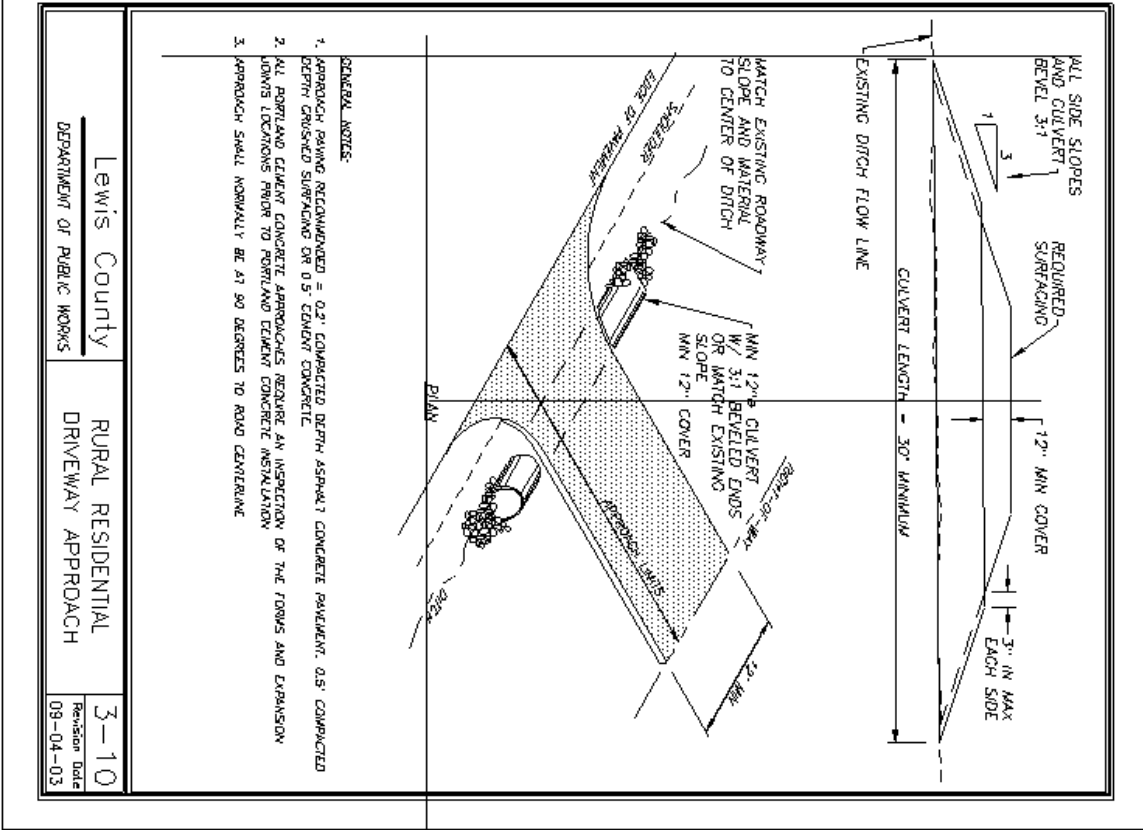
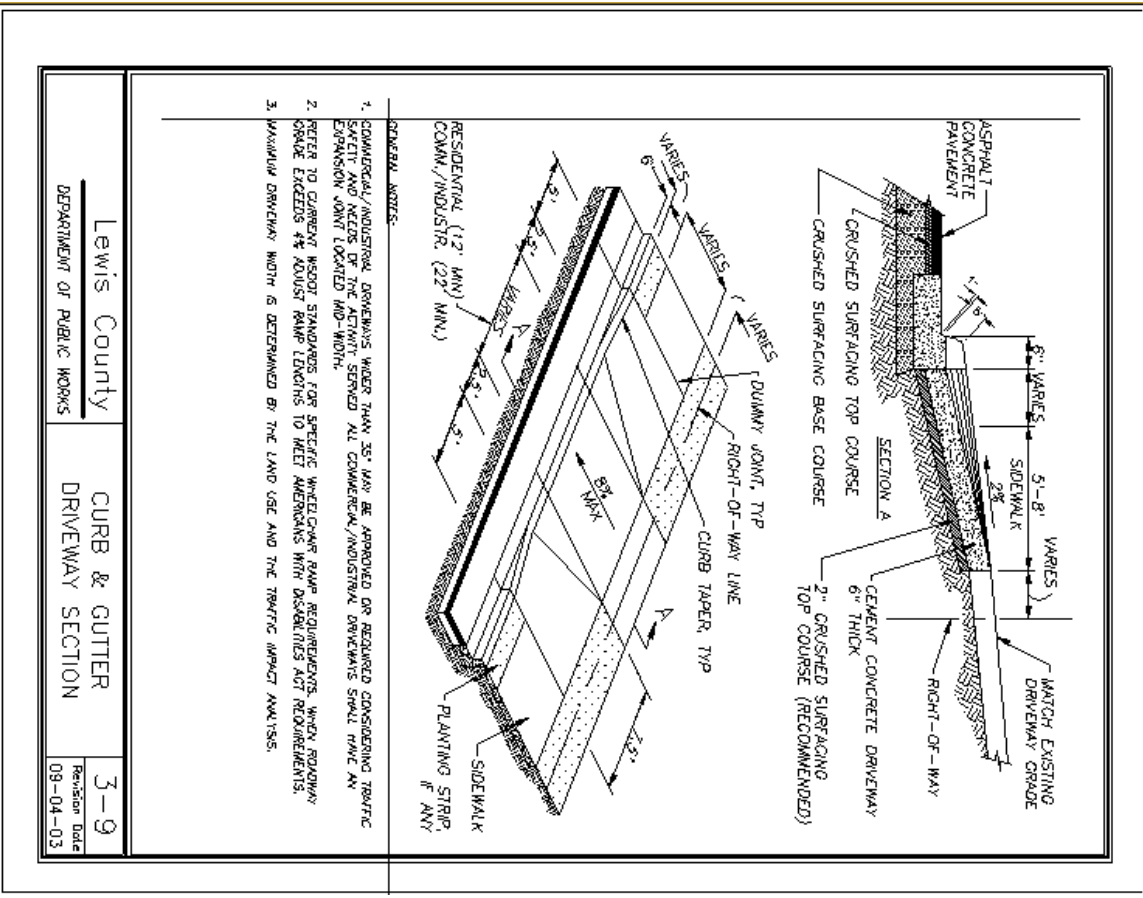
DESIGN SPEED	PER AASHTO SUPPLEMENT
MAXIMUM ROAD GRADE	15%
MINIMUM ROAD GRADE	0.5%
MINIMUM SURFACE WIDTH	20'
EASEMENT WIDTH	40' MIN.
ROADWAY GEOMETRICS	PER AASHTO SUPPLEMENT
MINIMUM REQUIRED	0.20' COMPACTED DEPTH
CS1C	0.80' COMPACTED DEPTH
CS2C	0.30' COMPACTED DEPTH, OR
ACP (RECOMMENDED)	THREE COURSES
BST (RECOMMENDED)	

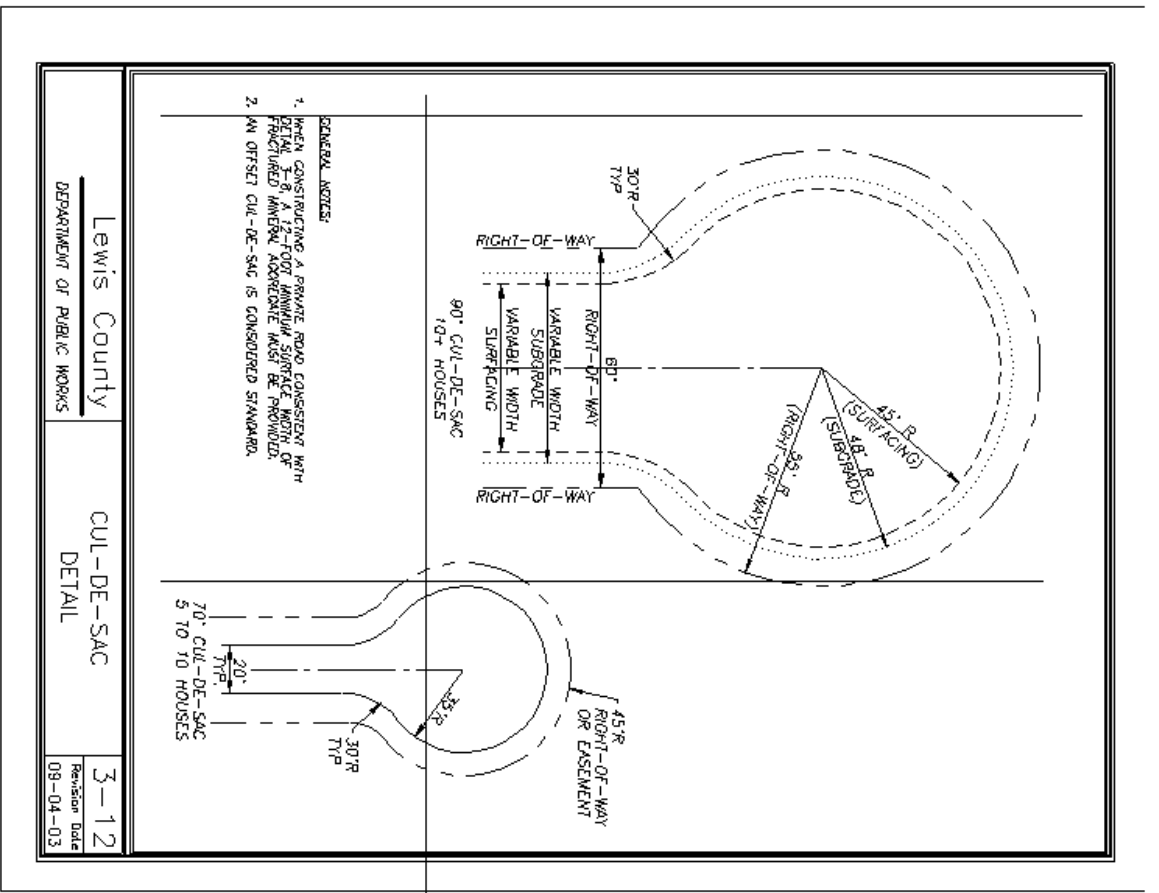
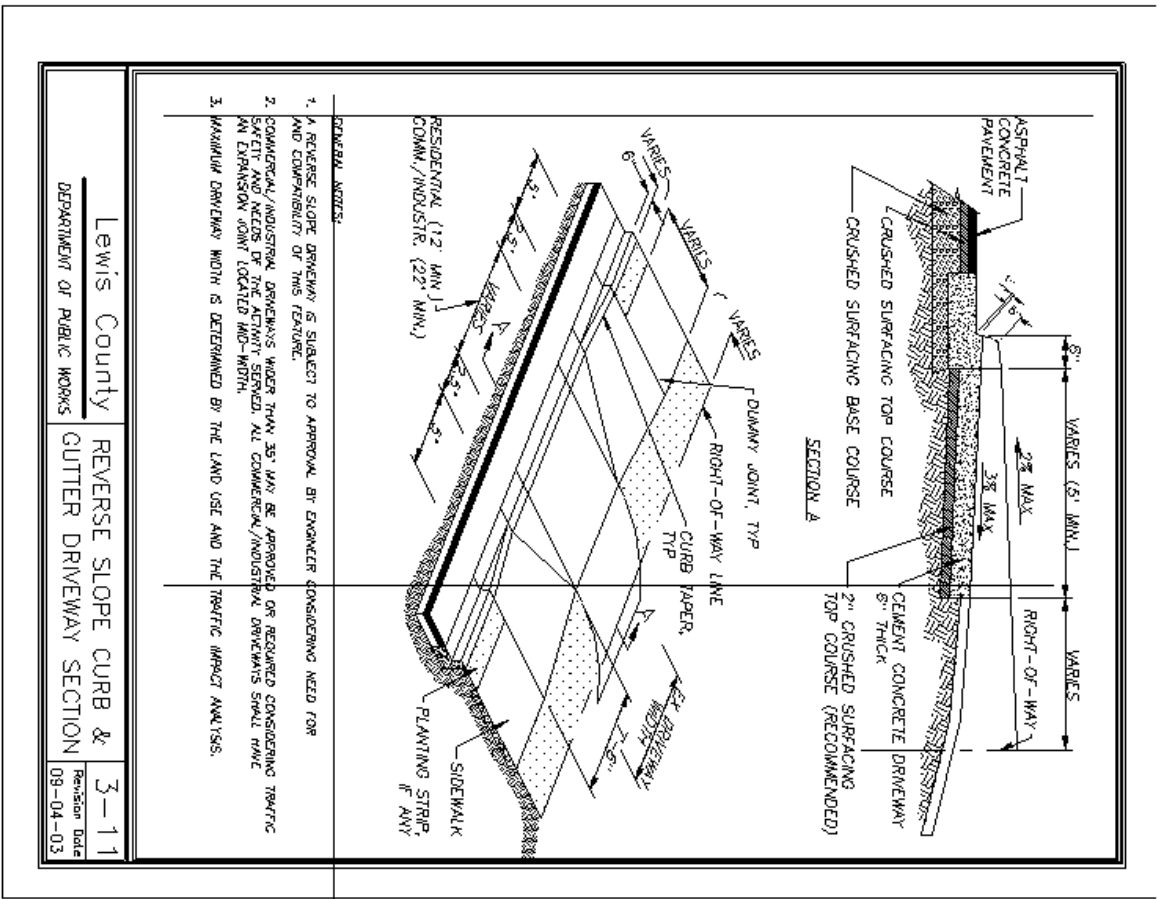
## GENERAL NOTES:

1. THE USE OF ROADSIDE SWALES FOR STORMWATER TREATMENT, BIO-FILTRATION, MAY REQUIRE ADDITIONAL WIDTH, SHALE OR DITCH ON ONE OR BOTH SIDES, AS APPROPRIATE.
2. SUBGRADE AND CRUSHED SURFACING COMPACTED TO AT LEAST 85% OF MODIFIED PROCTOR, PER METHOD C.
3. ONE TO FOUR RESIDENCES MAY UTILIZE OPTIONAL ROADWAY STANDARD DETAIL FOR 1-4 RESIDENCES, SEE STANDARD DETAIL 3-B.

Lewis County	VERY LOW VOLUME	3-6
DEPARTMENT OF PUBLIC WORKS	PRIVATE ACCESS ROAD SECTION (ADT: LESS THAN 100) RURAL AREA	Revision Date 09-04-03







ALLOWED BY MINOR CHANGE/DEVIATION ONLY  
CHAPTER 1.06 DESIGN CHANGE/DEVIATIONS

80'

30' R TYP

120'

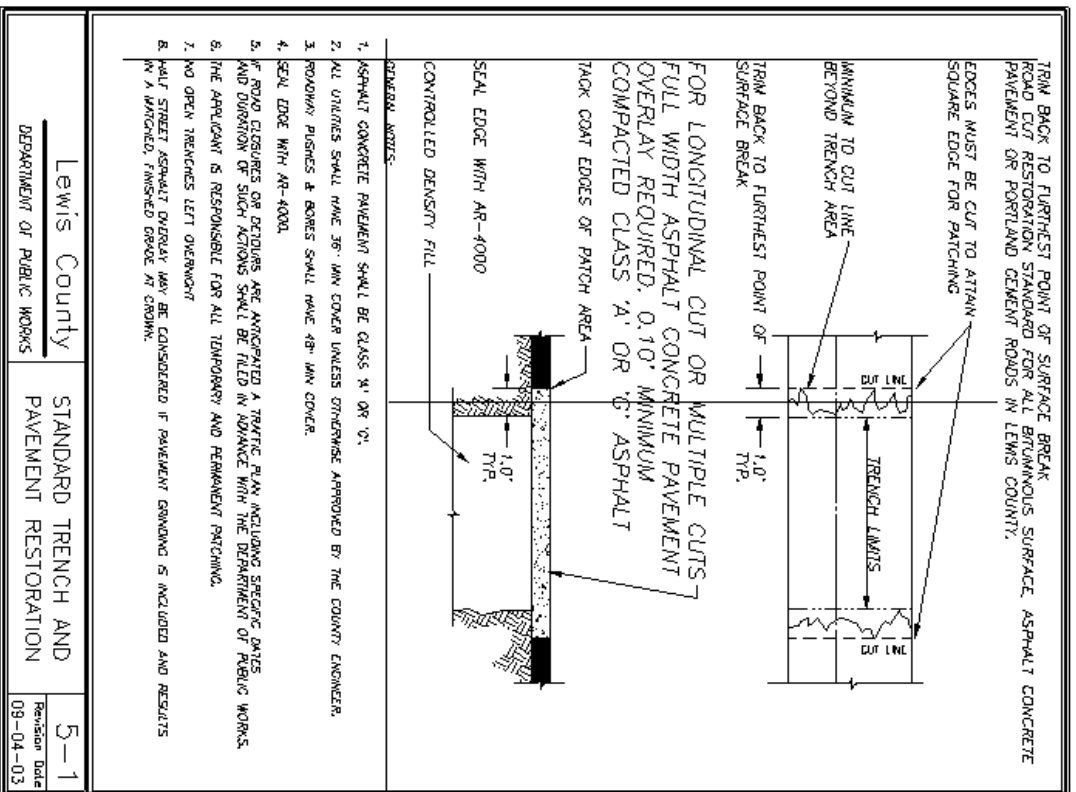
VARIES

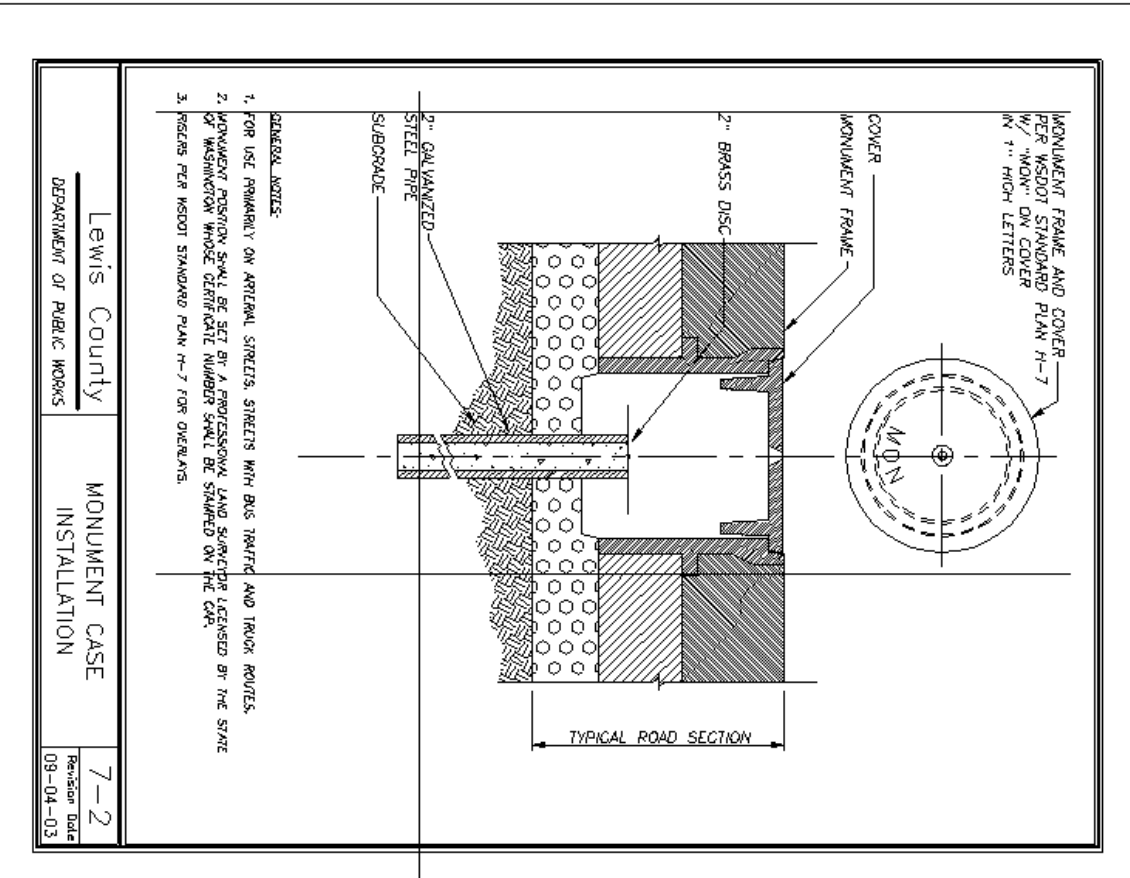
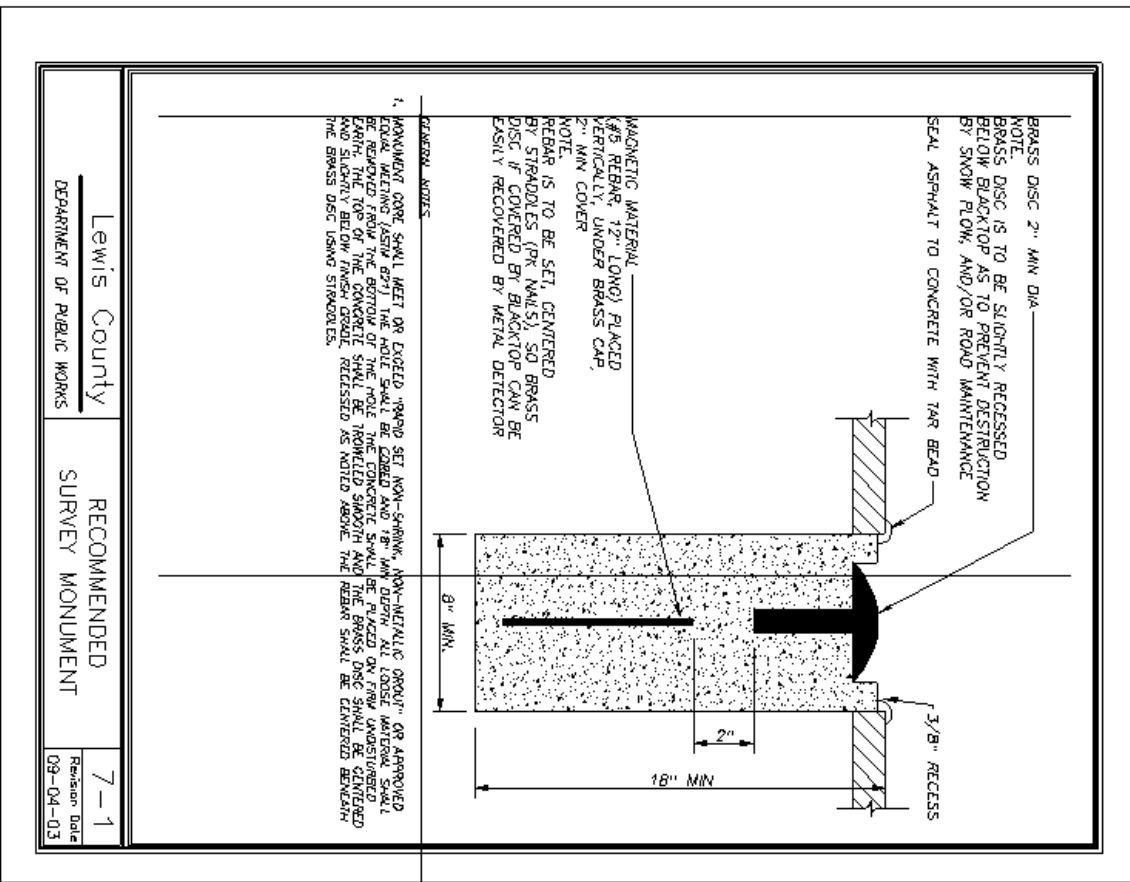
20' MIN OR PER DESIGN

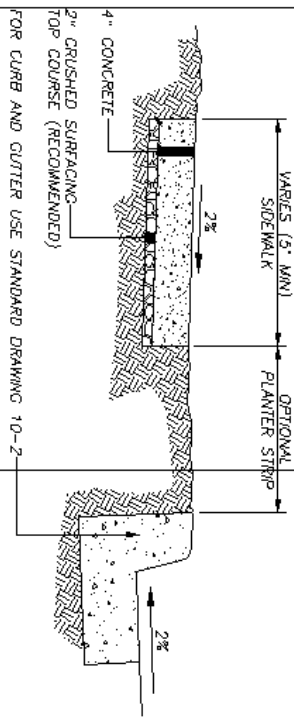
TYPICAL HAMMERHEAD

1. WHEN CONSTRUCTING A PRIVATE ROAD CONSISTENT WITH DETAIL 3-8, A 12'-FOOT MINIMUM SURFACE WIDTH OF FRACTURED MINERAL AGGREGATE MUST BE PROVIDED.

Lewis County	HAMMERHEAD	3-120
DEPARTMENT OF PUBLIC WORKS	DETAIL	Revision Date 09-04-03





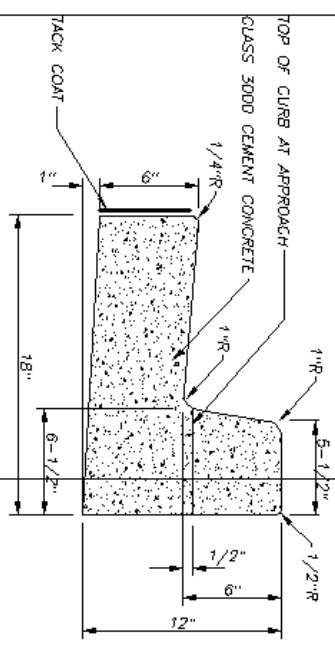


FOR CURB AND GUTTER USE STANDARD DRAWING 10-2

GENERAL NOTES:

1. FOR JOINTS AND SCORING, SEE STANDARD FOR SIDEWALK SPACING, EXPANSION JOINTS, AND SCORE MARKS
2. AT CONCRETE DRIVEWAYS, SIDEWALKS SHALL BE A MINIMUM DEPTH OF 8".
3. WHEN CHECKED WITH A 10 FOOT STRAIGHT EDGE, GROVE SHALL NOT DEVIATE MORE THAN 1/8". AND ALIGNMENT SHALL NOT VARY MORE THAN 1/4".
4. DRAINAGE/CATCH BASINS SHALL BE DESIGNED PER MSDOT STANDARD.

Lewis County	SIDEWALK	10-1
DEPARTMENT OF PUBLIC WORKS		Revision Date 09-04-03



GENERAL NOTES:

1. EXPANSION JOINT MATERIAL TO BE 3/8" THICK REMOVED JOINT FILLER FULL THICKNESS OF CONCRETE SPACING (16 FT MAX).
2. FORM AND SUBGRADE INSPECTION REQUIRED BEFORE POURING CONCRETE.
3. SUBGRADE AND BASE COMPACTED TO AT LEAST 95% OF ADOPTED PROCTOR, PER MSDOT STANDARD SPECIFICATIONS, SECTION 203.3 (14/6), METHOD C.

Lewis County	CEMENT CONCRETE CURB AND GUTTER	10-2
DEPARTMENT OF PUBLIC WORKS		Revision Date 09-04-03